RESPONSIVENESS SUMMARY
CONCERNING EPA'S AUGUST 30, 2001
PUBLIC NOTICE PROPOSING NUMEROUS TMDLS
FOR WATERS IN THE STATE OF GEORGIA

Total Mercury TMDL - February 2002 - finalization of Total Mercury TMDLs for **Middle Georgia Watersheds**: Stone Mountain Lake, Oconee River, Jackson Lake and Ocmulgee River, Lake Oconee, Lake Bennett, Ohoopee Watershed including segments: GA Highway 147 to confluence with Altamaha River, Highway 292 to Highway 147, Little Ohoopee River to US Highway 292, Neels Creek to Little Ohoopee River, Sand Hill Lake, Gum Swamp Creek; Big Haynes Reservoir, Altamaha River including segments: Confluence of Oconee and Ocmulgee Rivers to ITT Rayonier, ITT Rayonier to Penholoway Creek; **South Georgia Watersheds**: Alapaha River Watershed including segments: Sand Creek to US Highway 129, US Highway 129/GA Highway 11 to Stateline, Double Run Creek, Alapahoochee River; St. Marys River Watershed including segments: North Prong St. Marys Cedar Creek to South Prong St. Marys River, South Prong St. Marys River to St. Marys Cut; Ochlockonee River Watershed including segments: Oquina Creek to Stateline, State Route 37 Downstream Moultrie to Upstream CR222, Bridge Creek to Big Creek; Satilla River Watershed including segments: US Highway 84/GA Highway 38 to 6 miles downstream of Highway 15/121, 6 miles downstream of Highway 15/121 to Bullhead Bluff, Dupree Creek, Purvis Creek, Terry Creek, Turtle River System, Gibson Creek; Withlacoochee River Watershed including segments: Headwaters to New River, New River to Bay Branch, Little River to Stateline, Bay Branch to Little River, Banks Lake, Turkey Branch; Suwannee River Watershed including segments: Suwannee Canal to Okefenokee Swamp, Suwannee Canal to State Line.

Public Participation Activity Conducted:

On August 30, 2001, EPA Region 4 published an abbreviated public notice in the legal advertising section of the Atlanta Journal Constitution. Additionally, Region 4 mailed copies of a detailed public notice to the Georgia Environmental Protection Division (EPD), the Plaintiffs in the Georgia total maximum daily load (TMDL) lawsuit against EPA (Sierra Club et al. v. John Hankinson et al., Civil Action 1:94-cv-2501-MHS), and persons, identified as potentially interested parties, on a mailing list maintained by Region 4. This public notice requested comments from the public on EPA's proposed TMDLs for a significant number of water quality limited segments in the State of Georgia.

Matters on Which Public Was Consulted:

As a result of settlement negotiations in the Georgia TMDL lawsuit against EPA (Sierra Club et al. v. John Hankinson et al., Civil Action 1:94-cv-2501-MHS), EPA had the following commitment:

> "If Georgia fails to propose for public comment by June 30, 2001, TMDLs for each waterbody identified in Georgia's 2000 Section 303(d) list, whether such Section 303(d) list is prepared by Georgia or by EPA, and that is located in the Oconee/Ocmulgee/ Altamaha Basins, then EPA shall propose such TMDLs by August 30, 2001. In the event EPA proposes such TMDLs, EPA will establish TMDLs following public notice and comment within a reasonable time, and, where significant comment is not received, expects to establish TMDLs by February 28, 2002, unless Georgia submits and EPA approves such TMDLs prior to EPA establishing such TMDLs."

The public was consulted on proposed TMDLs for the water quality limited segments in the Oconee, Ocmulgee, and Altamaha, Alapaha, Suwannee, Satilla, Ochlockonee Basins of the State of Georgia. The proposed TMDLs are identified in the attached list. EPA Region 4 had received and evaluated water quality-related data and information about these waters and pollutants and had prepared documents supporting the preliminary determinations of these evaluations.

Summary of Public's Comments:

The following persons provided written comments or written request for copies of the proposed TMDL during the public comment period:

Frank Carl, PhD
Savannah Riverkeeper, Inc.
3802 Washington Road
Martinez, Georgia 30907

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Georgia Department of Natural Resources
Environmental Protection Division
Water Protection Branch
4220 International Parkway, Suite 101
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Rita Kilpatrick
Georgians for Clean Energy
427 Moreland Ave., NE, Suite 100
Atlanta, Georgia 30307

Robin J. Reash
Utility Water Act Group
Hunton and Williams, Counsel to UWAG
1900 K Street, NW
Washington, D.C. 20006

M.E. Wilder
Georgia Power
Environmental Affairs, 6th floor
241 Ralph McGill Boulevard NE
Atlanta, Georgia 30308-3374

Fredric P. Andes
Barnes & Thornburg
1401 Eye Street, N.W., Suite 500
Washington, D.C. 20005

Kesler T. Roberts
Georgia Legal Watch
264 North Jackson Street
Athens, Georgia 30601

Comment

The Commenter objects to using the mean exposure using 56.6% trophic level 3 and 43.4% trophic level 4 fish to determine exposure of the fish consuming population. The TMDL should be protective of at least a majority of the fish consuming population.

Response

The use of the breakdown of the consumption rate among the trophic level 3 and 4 fish is taken directly from EPA's Methyl Mercury criterion document, which recommends this ratio when no site-specific data exists.

Comment

The commenter indicates that the calculated water quality standard for the referenced section of the Altamaha will allow mercury levels in the river that will not be protective of the fish-consuming human population. The water quality standard has been calculated using values for constants that offset the built-in protection of the reference dose.

Response

The calculated water quality target for the waterbody will result in compliance with the water quality standard of 0.3 mg/kg of methylmercury in fish tissue that is protective of the general population. Values used to calculate this target are accepted default values for human body weight, fish consumption, and reference dose. These constants do not offset the "built-in" protection of the reference dose and none of the uncertainty factors used in developing the reference dose have been modified in developing the target. Uncertainty factors used in the derivation of the RfD to account for intra-and interspecies variability and the incompleteness of the toxicity data set(s)/animal studies are specifically relevant to the chemical's internal toxicological action, irrespective of the sources of exposure that humans may be experiencing. The Agency's policy is to consider and account for other sources of exposure in order to set protective health criteria. EPA believes that multiple route exposures may be particularly important when uncertainty factors associated with the RfD are small. Although EPA is well aware that RfDs are not all equivalent in their derivation, EPA does not believe that uncertainty in the toxicological data should result in less stringent criteria by ignoring exposure sources.

Comment

The commenter indicates that no margin of safety was built into the reference dose. The commenter notes that if the reference dose is not exceeded in any members of the population, the risk is negligible, at least for detectible deficits.

Response

Margin of safety in the development of the TMDL does not take into account nor try to quantify any margin of safety associated with the water quality standard or the assumption behind the development of that water quality standard. This

TMDL does not try to examine the assumptions of methodologies associated with the reference dose used in the human health methodology for developing the water quality target used in the TMDLs.

Comment

The commenter indicates that the correction factor for seafood consumption (RSC) is averaged, so that the exposure to MeHg from seafood may be considerably higher in some individuals.

Response

The RSC value is based upon national studies and no attempt is made to correct for different geographical or population areas.

Comment

The commenter indicates that EPA chose to use the average body weight of the adult male rather than the average body weight of a child. The commenter notes that children are more susceptible to MeHg toxicity and therefore the body weight of a child should be used, maybe 15 kg, so that the calculated water quality standard would tend be protective for women and children as well as adult men.

Response

In the studies so far published on subtle neuropsychological effects in children, there has been no definitive separation of prenatal and postnatal exposure that would permit dose-response modeling. EPA's final Methylmercury criterion guidance document incorporated an analysis using default assumptions similar to that mentioned by the commenter. The results of this analysis concluded that using all of the risk assumptions of an adult male resulted in a criterion that was no less stringent than any other risk scenario (including children). Therefore, the criterion used in this situation will be protective of women and children as well as adult men.

Comment

The commenter indicates that the TMDLs use average generalized consumption rate of 17.5 g of fish/day. 17.5 g is about 0.6 oz. The commenter indicates that 17.5 grams/day is not an accurate estimate of the consumption of a subsistence fisher person who depends on freshwater fish for his daily protein requirement. While using this average consumption in the calculation of the WQS may protect those that consume at or less than the average amount of fish per day, it won't help protect the half of the fish-consuming population who eat more than the average quantity of fish per day. If it assumed that 95% of the fish-consuming population eats less than 2 oz (approximately 60 g), then including 60 g (or 0.060 kg) as the consumption rate will protect 95% of the fish-consuming population instead of 50%.

Response

The 17.5g/d consumption rate is EPA's current default consumption rate for the general population and is published in the latest Human Health Methodology.

Commenter is incorrect in stating the percentage of the fish eating population that is represented by this value. This value represents the 90th percentile of the 1994-96 USDA CSFII data. According to the methodology, there is a four tier hierarchy for the type of data to be used to generate an appropriate consumption rate. Since there are no local fish consumption studies, no consumption studies in similar areas, and no separate well-defined population of high-end consumers, EPA believes that using the national default, consistent with the State methodology, is appropriate.

Comment

The commenter indicates that the biggest problem with the WQS calculation is the use of the "weighted" bioaccumulation factor. Using the data presented on the web site for the seven largemouth bass, a range of BAFs from 0.17×10^6 to 37×10^6 can be calculated. If the water quality standard is designed to be protective of the fish-consuming population, then the BAF should be weighted toward the upper end of this range instead of the lower end. But, since the higher BAFs were calculated from the lower water column mercury concentration in the upper portion of this section of river, and since the water column mercury concentration in that section of the river was low, it seems reasonable to use the high end BAF for from the downstream portion which turns out to be 2.83×10^6.

Response

The use of the weighted bioaccumulation factor represents the typical fish consumption in the area. It would be unreasonable to assume that all fisherman eat is trophic level 4 large mouth bass.

Furthermore, the recently promulgated Methyl Mercury Criterion (US EPA), suggests the use of weighted BAF's to derive use support and water quality targets.

Comment

The commenter indicates that in the TMDL the margin of safety (MOS) is incorporated into the conservative estimate of mercury entering the river section annually. However there is no estimate of the mercury entering the river on the website and therefore no margin of safety there. The commenter also notes that the other margin of safety claimed is that the calculation of the TMDL does not consider the reduction and volatilization of the mercury in the water column. But the WQS already takes these factors into account indirectly. The actual measurement of total water column mercury and the actual measurement of the concentration of mercury in fish are used to calculate the bioaccumulation factor and the fraction of methyl mercury in the water. The actual concentrations are used. These measured concentrations do not include reduced/volatilized mercury. So they are already not included in the calculations and can't be claimed as a margin of safety. In fact there are no margins of safety in the EPA's TMDL calculation. Therefore, it is necessary to use the more conservative estimates for body weight, for daily fish consumption and for the bioaccumulation factor introduced in the recalculations above in order to include any margin of safety into the calculations

Response

The explicit margin of safety used in the development of the TMDL's for waterbodies where EPA deemed not impaired, a simplistic approach was used in the development of these "informational TMDLs'. The conservative assumption is that a portion of the mercury load coming into a waterbody will undergo reduction/volatilization and a portion of the load will go back to the atmosphere. EPA assumed in TMDL calculations that all of the mercury coming into the river effected the water concentration.

The commenter is correct in that actual field measurements (water and fish tissue) were used in the development of the site-specific water quality target for mercury, which the TMDL is calculated from. These instream/fish concentrations have been subjected to volatilization. If reduction/volatilization were included in the TMDL calculation this would cause the TMDL load to be increased.

Comment

There is 1×10^{-9} ng in one gram. See TMDL equation on website

Response

This labeling error was corrected in the TMDL.

Comment

The TMDL equation needs a units factor in the numerator of 1000 L/m3.

Response

This conversion factor was "blended" into the calculation in the equation. The equation has been modified so that this conversion is explicitly defined and used.

Comment

The calculated TMDL should have been 53.1kg of mercury/yr not 52.4 g/yr as indicated on the website.

Response

This labeling error was corrected in the TMDL.

Comment

The commenter notes that EPA claims a reduction of emissions from medical waste incinerators from 752 to 25 kg/yr by 2010 combined with a reduction in the number of medical waste incinerators from 49 to 2 in the Ohoopee airshed. The commenter indicates that no attempt was made in EPA's calculations to account for the transfer of medical waste from a closed facility to one of the facilities that will continue to operate

Response

EPA recognizes the concern that medical wastes which were previously incinerated at local facilities (now closed) may simply be transferred to other incinerators that are still in operation. While this is a possibility, we do not have information regarding the detailed handling of medical waste in each county. It is possible that the medical wastes which were previously being incinerated are now being treated with some other method (e.g., sterilization not involving combustion). Another possibility is that these wastes continue to be incinerated. If so, the wastes might be sent a nearby incinerator still operating, or shipped to a large commercial facility outside the area of the local airshed. It is important to recognize that all medical waste incinerators that continue to operate must meet the current stringent emission limits for mercury pursuant to Section 129 of the Clean Air Act (specified in 40 CFR Part 60, Subpart Ce), which requires at least an 85% control efficiency. Therefore, even if wastes are transferred to nearby incinerators, the levels of mercury emitted to the atmosphere (and thus potentially deposited in the watershed) from medical waste incineration will be greatly reduced.

EPA has examined the most recent data for the two medical waste incinerators in the Ohoopee airshed. Since August 2001, when the proposed TMDL for the Ohoopee watershed was prepared, EPA has released a draft version of an updated hazardous air pollutant (HAP) emissions inventory, called the Draft 1999 NTI or National Toxics Inventory. (This draft NTI is currently available on EPA's website at: http://www.epa.gov/ttn/chief/nti/index.html#1999.) This is the most recent database of HAP emissions available. A review of the Draft1999 NTI for mercury emissions from the two facilities in the Ohoopee airshed which are projected to continue operating indicates no increases of mercury emissions since 1994-95. Thus the most current data available indicates no increases in emissions, even though other local medical waste incinerators have ceased operation since 1994-95. In the future it remains possible that emissions from these two incinerators could either increase or decrease.

An important point to consider is that the American Hospital Association and EPA have committed to a voluntary program to reduce and seek to eliminate mercury use in hospitals by 2005. The Georgia Department of Natural Resources also is supporting this program. Considering the combination of these factors, EPA believes that the analysis of potential future emissions from medical waste incineration and resulting deposition to the Ohoopee watershed is appropriate, based on current information.

Comment

The commenter indicates on page 1 of TMDL there is a statement that says “The purpose of this TMDL is to identify the allowable load of mercury that will result in attainment of the applicable water quality standard, and the unrestricted use of the identified segments for fish consumption.” This could be interpreted to mean that there won’t be any fish

consumption guidelines on the waterbody. This could be reworded to say "The purpose of this TMDL is to identify the allowable load

Response

The text in the TMDLs will be modified to reflect this explicit definition provided by the commenter.

Comment

The commenter indicates in Section 2.2 - paragraph 2 - the TMDLs say that as NPDES permits are reissued, dischargers will be required to use Method 1631. Please note that EPD doesn't plan to put a requirement to measure mercury-using method 1631 into every permit in the basin affected by TMDLs. Those facilities that are required to do the mercury assessment and minimization plan will have mercury monitoring in their permits. Minors (industrial and municipal) will be required to monitor for mercury using Method 1631, but EPD is planning to do this by letter). EPD does not plan to make PIDs (mobile home parks, gas stations, etc.) do this testing because they discharge very low volumes of wastewater and the cost of the test would be burdensome to them. Also, the collection of samples is complicated if it is done in a way to reduce mercury contamination and will likely be beyond the ability of the operators. If samples are not taken correctly and contamination occurs, the data is not of any use. This sentence could be fixed by changing it to "As explained in Section 10.2., certain dischargers will be required to measure mercury in their discharge using Method 1631."

Response

The TMDLs will be modified to reflect the State of Georgia's comments. Furthermore, the TMDLs will better describe the delegation of authority of the NPDES permitting program to the State of Georgia. Ultimately, the State of Georgia will decide which NPDES permitted facilities will have to sample their effluent using Method 1631.

Comment

The commenter indicates in section 4 (of TMDLs where TMDLs still need to be done) Section 3 (of TMDLs where data shows water quality criteria being met) - The second to last sentence says that waterbodies will be listed on the 303(d) list when the weighted fish consumption concentration is greater than 0.30 mg/kg. Georgia is interpreting the human health criteria to be 0.3 mg/kg, not 0.30 mg/kg.

Response

The TMDL documents will be modified to concur with these comments.

Comment

The commenter indicates in Section 4 Section 3 (of TMDLs where data shows water quality criteria being met) - The last sentence says that Georgia will use a weighted fish consumption of 9.9 grams per day (43.4%) as trophic level 3 and 7.6 grams or (56.6%) as trophic level 4. The percentages are backwards (i.e. 9.9 g of 17.5 g is 56.6% not 43.4%). The TMDL used the correct percentages in the calculations though. However, EPD sent

a letter to EPA on September 24, 2001 stating that if only trophic levels 3 and 4 were present, we would assume 8 grams per day (58.4%) was trophic level 3 and 5.7 grams per day or (1.6%) was in trophic level 4. There is not a big difference between the percentages used in the TMDLs and those EPD is planning to use. However the difference in weighting factors could change the weighted BAF used in the equations that would affect the calculated water quality standard for mercury.

Response

The paragraph in the TMDL has been corrected to reflect the exact procedure and percentages GA EPD uses in determining impairment.

Comment

The commenter indicates in Section 5 - Equation 5.1 - Although the TMDL lists all of the values to be used in equation 5.1, we get a different value than that listed in the TMDL for most every TMDL. Some of the differences are relatively small, for example in the Ochlockonee Watershed we calculated the WQS to be 1.6 ng/l, but the TMDL lists the WQS as 1.9 ng/l. Some of the differences are large like for the Withlacoochee Watershed (using the numbers in the TMDL we calculate the WQS to be 0.66 ng/l, but the TMDL list the WQS to be 8.3 ng/l. Did EPA use the exact numbers listed in the TMDL to calculate the WQS? Was some rounding done somewhere?

Response

The numbers and calculations were rounded to one significant figure after the decimal place for the water quality target and weighted fish tissue concentrations.

Comment

The commenter asks, in Section 5 - How is the weighted BAF calculated? Which numbers are used? Could you provide the formula?

Response

The weighted BAF is Calculated as follows:

$$Weighted\ BAF = \frac{(Trophic\ Level\ 4\ BAF * Consumption\ \%) + (Trophic\ Level\ 3\ BAF * Consumption\ \%)}{TotalConsumptionRate}$$

Comment

The commenter asks, in Section 5 - Equation 5.1. - How does EPA determine the fraction of methyl mercury used in the calculations? In some of the TMDLs, it looks like EPA took the average of "percent methyl mercury" that was measured in the water column (Table 3). However, in other TMDLs, we could not correlate the numbers in Table 3 with the percent methyl mercury used in equation 5.1.

Response

Taking the average of the total mercury and methylmercury measured in the water column, and dividing the average methylmercury concentration by the average total mercury concentration calculated percent methylmercury. The numbers in the TMDL tables will be checked to assure accuracy.

Comment

The commenter indicates in Section 9.2 - It appears that the TMDL load was calculated in two different ways (depending upon if the data indicates that a TMDL is still needed). If a TMDL is needed, the TMDL load was calculated as a ratio of the highest segment concentration and the current annual average load to the water quality target and the TMDL load. However, for the TMDLs where the data indicates that water quality standards are being met, the TMDL load was calculated as a function of the water quality target and the annual average stream flow. Why were the loads calculated in two different fashions? Also, it seems that the second method (using the water quality target and the annual average stream flow) would potentially be a more accurate way of calculating the TMDL load because it relies on the annual average stream flow which is easier and to quantify than the current average load of mercury to the basin and the calculated highest stream concentration of mercury.

Response

EPA to use 2 different methods in calculating the Total Maximum Daily Load, for the waterbodies where EPA determined that they were meeting their designated uses a simplistic approach (water quality target * annual average flow) was used, for the impaired waterbodies a fate and transport model was employed.

The simplistic approach is a relatively easy calculation, but it does not account for any mercury processing within the waterbody. As mercury is moved throughout the waterbody it undergoes several transformations and losses due to reduction/volatilization. The simplistic approach does not include these losses as well as account for any interactions with the underlying sediments in the system. Because the waterbodies were deemed not impaired, EPA did not undergo the time consuming process of developing a fate and transport model.

Comment

The commenter indicates in Section 9.2 (of TMDLs where TMDLs still need to be done) - In the calculation for percent reduction the right hand side of the equation is written as (TMDL/Current Loadings)*100. This should really be:

$$\frac{\text{Current Loading - TMDL}}{\text{Current Loading}} \times 100$$

The percent reductions calculated are generally right, the equation just isn't written correctly.

Response

Commenter is correct; the equation provided is not straight forward for calculating the percent reduction required. The equation described in the TMDL is used to calculate the allowable load to the system, by setting up a proportion between existing load and future load that would be required to meet the water quality target. This calculation assumes that predicted concentration is linear with respect to load. This assumption holds true in that all of the modeling contains a "steady-state" assumption.

Comment

The commenter indicates in Section 10.2 (of more than half of the TMDLs where TMDLs still need to be done) - A cumulative wasteload for all the NPDES point sources is given. The cumulative wasteload is only a percentage (20-25%) of the wasteload that is established. Why isn't the whole wasteload given to the NPDES sources? How did EPA calculate the cumulative wasteload? A couple of the TMDLs did give the whole wasteload as the cumulative wasteload.

Response

The reasoning behind the assignment of a cumulative wasteload to the NPDES permitted facilities was given because an analysis of the available fish tissue collected by EPA and the State shows the waterbody not to be impaired. For the waterbodies where there were NPDES facilities the cumulative wasteload was calculated by taking the facilities permitted flow and multiplying it by the derived water quality target. For waterbodies where there were no NPDES permitted facilities, no wasteload allocation was made.

Comment

The commenter indicates in Section 10.2 (of TMDLs where the TMDL still needs to be done) - There is a sentence that says (as a matter of policy, that NPDES point sources known to discharge mercury at levels above the amount present in their source water should reduce their loadings through mercury minimization). This should only be required if the facility discharges mercury above that in its source water and also above the water quality target.

Response

The TMDL document will be modified to clarify this point.

Comment

The commenter indicates in Section 10.2 (of TMDLs where TMDLs still need to be done) in paragraph 5 under Option B: Mercury characterization or minimization - there is a statement that says that the TMDL assumes that point sources will not be authorized to discharge mercury above current effluent levels. The second point under "Other Assumption Incorporated Into this TMDL" states that no NPDES point source will be authorized to increase its mass loading of mercury. These statements could effectively keep plants from expanding which could cause a lot of economic hardship. There is not enough data available at this time to know what concentrations of mercury facilities are discharging. It is also not known how much the concentration can be reduced through mercury minimization programs. The way the TMDL is currently written, a POTW that discharges 0.5 MGD would have to decrease the concentration of mercury in their effluent by 50% in order to expand to a 1 MGD facility. This may not be technically feasible. In addition, if the facility were already discharging at or close to the water quality standard for mercury, this condition of the TMDL would result in them being required to discharge mercury at concentrations less than the water quality standard. This is not reasonable. The TMDL is based on what concentration of mercury in the water

body leads to unacceptable concentrations of mercury in fish tissue. It is not reasonable to require facilities to discharge less than the water quality standard. A facility that discharges at the water quality standard would not be causing or contributing to a violation of instream standards. A more reasonable requirement would be that facilities not be allowed to discharge a greater concentration than they are already discharging. In addition, a requirement to conduct a mercury minimization plan could be a condition of a permittee getting an increase in flow. Restricting the growth of facilities is too stringent a response when there is still so much to learn about how mercury cycles in the environment.

Response

The TMDL document will be modified to better explain, that no increase in concentration of mercury in the effluent can occur. Using the example provided by the commenter, a facility currently discharging a 0.5 MGD with a mercury concentration at of below the calculated water quality target could increase its discharge to 1.0 MGD if the mercury concentration stayed at or below the calculated water quality target.

Comment

The commenter indicates in Section 10.4 - Number 6 - states that Georgia will modify the NPDES permits for the facilities identified in 1 and 2 above. While EPD does plan to modify the permits for permittees listed in Table 10 of the TMDLs (i.e. those that have to do a mercury characterization/implementation plan), EPD does not plan to modify the permits of minors that only have to characterize their effluent for mercury. Modification of permits is a labor-intensive process. EPD has the authority to require a permittee to sample for any additional parameter upon notification. EPD therefore plans to require this monitoring by writing letters to permittees.

Response

EPA will modify the wording in the TMDL to clearly state that this process has been delegated to the State of Georgia and that the State already has a process in which facilities can be require to monitor for any additional parameter upon notification.

Comment

The commenter indicates in Section 10.2 - (under the paragraph that talks bout compliance schedules) - the TMDL states that point sources under 5 MGD should be able to develop a detailed mercury minimization plan within 3 to 6 months after the mercury characterization plan is finished and that point sources with larger flows could have it completed in 6 - 12 months. EPD is planning to give all POTWs 12 months to develop a mercury minimization plan. While it is true that larger systems will have a larger and possibly more complex system to evaluate, larger systems also generally have more staff, money and expertise to tackle a mercury minimization program. While smaller systems may not have as much to evaluate, they are more likely to have a harder time finding personnel qualified to develop the plan and they will likely have a harder time funding it.

Response

EPA will modify the wording in the TMDL to clearly state that this process has been delegated to the State of Georgia and that the State will be responsible for determining the timeframe requirements for the development and implementation of the mercury minimization plans. EPA urges the State of Georgia to this a possible.

Comment

The commenter indicates in Section1 (of TMDLs where it appears standards are being met) - The last sentence says that the TMDL proposes that dischargers be held a their current loading. As explained in item 12 above, this statement could keep plants from expanding. All the comments in item 12 apply here as well, along with the further objection that if the water quality criteria are being met, it is not right to make it extremely difficult for a facility to expand when there is no evidence that its doing so would result in a water quality problem.

Response

The TMDL document will be modified to allow for the expansion of facilities as long as the expansion of the facility does not increase the concentration of mercury entering the waterbody.

Comment

The commenter indicates in Section 3 (of TMDLs where it appears standards are being met) and Section 4 (of other TMDLs) contains a sentence that says "Using this methodology, it is determined that the general population is consuming greater than 17.5 grams of fish per day, the waterbody is determined to be impaired and will be included on future State Section 303(d) lists when the weighted fish consumption concentration is greater than 0.30 mg/kg." We don't understand the first part of the sentence that says that "it is determined that the general population is consuming greater than 17.5 grams of fish per day." We thought this was the consumption rate that was used in the TMDL. Also, the word "that" before "0.30 mg/kg" needs to be changed to a "than."

Response

The TMDL documents will be modified to clarify this wording. EPA is using a consumption rate of 17.5 grams/day in its calculations.

Comment

The commenter notes on Page 2 - Section 2.1. The second sentence references Section 0. Should this be Section 6.1?

Response

The cross-referenced section number will be corrected in the final TMDL document.

Comment

The commenter indicates in Section 2.2 (second to last sentence) - says that permits in the Satilla River Basin will be reissued in 2012. They are scheduled to be reissued in 2011.

Response

The TMDL document will be updated to reflect the correct year for re-issuance of NPDES permits.

Comment

The commenter indicates in Section 5 - the fraction of total mercury as methylmercury was listed as 0.34 as measured. The highest percent methyl mercury in table 3 was 25%. Where did 0.34 come from?

Response

The 0.34 was a typo; the actual fraction methylmercury is 0.23 and was used in the calculation.

Comment

The commenter indicates in Section 6.1 - Some additional point sources in the basin are New Hope Plantation MHP (GA0048895); DOT Rest Area No. 105 (GA0026361); Burgess Seafood (GA0037397); King & Prince Seafood (GA0002739); Allied Universal Corp. (GA0003743); River Oaks Corp. (GA0035599); USN - Naval Submarine Base (GA0027707); Brantley High School (GA0033774); DNR Laurel Walker State Park (GA0049590); Dutch Quality Home (GA0035513). Also, please check to be sure that facilities like Saint Simons WPCP and Jekyll Island WPCP actually discharge to segments listed for mercury.

Response

The TMDL document has been modified to include these NPDES permitted facilities. St. Simons and Jekyll Island WPCP do not discharge directly to the impaired segment; therefore they have been removed from the list.

Comment

The commenter indicates in Section 10 - The Load Allocation is given as 3.02 kilograms/year and the wasteload allocation is given as 0.16 kg/year. That adds up to 3.18 kg/year and the TMDL is 3.2 kg/d. If the load allocation is given as 95% of the TMDL it should be 3.04 kg/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 - The last sentence of the second paragraph says the TMDL could be revised in 2011. As explained above, EPD is scheduled to reissue

permits in the Satilla River basin in 2011, so the TMDL should be revised (if needed) in 2010.

Response

The TMDL document will be updated to reflect the correct year for re-issuance of NPDES permits.

Comment

The commenter indicates in Section 10.2 - The third paragraph states that all NPDES point sources in the basin will have a cumulative wasteload allocation of 0.03kg/year. Where did this number come from? The wasteload in section 10 is given as 0.16 kg/year. Shouldn't this be the wasteload for NPDES point sources?

Response

The wasteload allocation number in the text was an oversight; the correct number should have matched the number in the TMDL table that defines the wasteload allocation. This oversight has been corrected in the final TMDL.

Comment

The commenter indicates in Section 10.2 (under option A) states that the sum of the individual wasteload allocations is 0.01 kg/year; however, Table 10 shows that if Brunswick Academy Creek were to discharge at the water quality target of 2.0 ng/l of mercury, it would discharge 0.036 kg/year. Therefore, Brunswick's discharge alone is over 0.03 kg/year, which is cumulative wasteload for all NPDES dischargers. If you add all the loads together in table 10, the total load from the seven dischargers is 0.195 kg/year, which is greater than the wasteload of 0.16 kg/year. Dischargers should not be required to discharge less than the water quality target for mercury.

Response

The summation of the loads from the permitted facilities was in error. The TMDL document has been modified and the dischargers would not be required to discharge below the water quality target.

Comment

The commenter indicates in Section 10.2 (under option B) there is a statement "EPA assumes that feasible/achievable mercury load reductions resulting from the mercury minimization efforts will, as a cumulative amount of all 7 facilities, result in a total loading of less than 0.16 kg/year." As explained above, if you add all the loads in Table 10 together you get 0.195 kg/year. To get to 0.16 kg/year, the dischargers would have to discharge less than the water quality standard of 2 ng/l.

Response

The summation of the loads from the permitted facilities was in error. The TMDL document has been modified and the dischargers would not be required to discharge below the water quality target.

Comment

The commenter indicates in Section 2, second to last sentence - A statement reads that EPA will issue a Phase 2 TMDL in 2011 if necessary. Also, in Section 2.2 (second to last sentence) the TMDL states that EPD will reissue permits in the Ochlockonee River Basin in 2012. This is not true, the current basin planning cycle has EPD reissuing permits in the Ochlockonee River Basin in 2011. This means if a TMDL is to be redone, it needs to be done in 2010 instead of 2011.

Response

The TMDL document will be updated to reflect the correct year for re-issuance of NPDES permits.

Comment

The commenter indicates in Section 10.2 - (on page 36 of our copy) - The TMDL says that Option B is predicated on the judgment that the 0.02 kg/year cumulative wasteload allocation will be achieved by applying waste minimization measures. Earlier in the TMDL the cumulative wasteload allocation was given as 0.08 kg/year, not 0.02 kg/year. The 0.02 kg/year figure is reiterated in the same paragraph.

Response

The wasteload allocation number in the text was an oversight; the correct number should have matched the number in the TMDL table that defines the wasteload allocation. This oversight has been corrected in the final TMDL.

Comment

The commenter indicates on the first page of the TMDL (behind the cover page) the TMDL lists 4 segments that the TMDL applies to, but does not list Sand Hill Lake and Gum Swamp Creek that are listed on the cover. Also, on this same page, the water Quality standard is listed as 32.8 kg/year. It should be 3.8 kg/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 2.2 (point #1 in the second to last paragraph), the TMDL states that 7 NPDES facilities will monitor for mercury and they consist of 4 municipal and 3 industrial facilities. Table 10 of the TMDL lists 7 facilities, but all are municipal facilities.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 6.3 - The TMDL states that focused monitoring work for the Ohoopee was done in 1988; this should be 1998.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10 - The bold type states that calculated TMDL load is 5.0 kg/year; this is the current load; the calculated TMDL load should be 3.8 kg/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 - 1st paragraph - the TMDL says that 7 facilities were identified because they discharge more than 1 MGD or were identified based on effluent data. Only one of the facilities listed in Table 10 discharges more than 1 MGD (Vidalia). Unless EPA has effluent data for the other facilities, they should not be listed. Further in the paragraph it says another 4 facilities "minors" are identified in the TMDL for a wasteload allocation; which 4 facilities does this refer to? Again, only Vidalia should be assigned a wasteload in this TMDL; the last sentence of this paragraph says the facilities are listed in table 11; the facilities are in Table 10.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 - 2nd paragraph - the TMDL states there are "x" other permitted NPDES facilities in the watershed. What is "x"? Appendix B is supposed to list all NPDES facilities in the watershed; Appendix B was not available on the internet.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 - under Option A (5th sentence) – the TMDL says the maximum loading from all the point sources would be 0.19 kg/year. The numbers provided in Table 10 indicate that the maximum loading would be 0.025 kg/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates on the first page behind cover page - the TMDL load is given as 6.9kg/year; later in the TMDL it is given as 3.2kg/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 2 - the TMDL states that phase 2 will be done in 2011; according to Georgia's current river basin planning cycle, we are to issue permits in the Suwannee River Basin in 2011. The TMDL would need to be done in 2010. Also, the second to last sentence in Section 2.2 says that Georgia will reissue permits in the Suwannee River Basin in 2012, as stated above, this is scheduled to be done in 2011.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 6.1 - table 2 - four facilities are listed as potential sources; all of these facilities are minors; while all should have to characterize their effluent for mercury, none should be required to develop and implement a mercury minimization plan in this phase; the other TMDLs for mercury only require majors and other facilities where there is a basis of concern to do the plans.

Response

The document has been modified to reflect all of the dischargers are minor.

Comment

The commenter indicates in Section 9.2 - just after the place where the TMDL load is calculated, the TMDL says that the current loading to the Suwannee River Basin is 3,200 grams/year. This should be 6,100 grams/year according to the data given above it.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 -1st paragraph, last sentence - the TMDL says that none of the facilities are considered to be municipal or industrial minors; actually, all would be considered to be minors.

Response

The document has been modified to reflect all of the dischargers are minor.

Comment

The commenter indicates in Section 10.2 under Option A - The TMDL states that the sum of the individual wasteload allocations is 0.01 kg/year; however, no flows were provided in the TMDL to back this up.

Response

The WLA is calculated by holding 5% of the total load to the system in reserve for NPDES facilities.

Comment

The commenter indicates in Section 2 - TMDL states that phase 2 will be done in 2011; according to Georgia's current river basin planning cycle, we are to issue permits in the St. Marys River Basin in 2011. The TMDL would need to be done in 2010. Also, the second to last sentence in Section 2.2 says that Georgia will reissue permits in the St. Marys River Basin in 2012, as stated above, this is scheduled to be done in 2011.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 6.1 - Table 2 - St. Marys Scrubby Bluff WPCP - NPDES Permit No. GA0037931 should be added (it is a minor) and The US Navy Kings Bay - GA0027707 discharges to Kings Bay and not the St. Marys River and should not be included.

Response

The table of NPDES facilities has been modified to include St. Marys Scubby Bluff WPCP, the reference to US Navy Kings Bay permit has been eliminated.

Comment

The commenter indicates in Section 9.2 - In the calculation for the TMDL Loading, the highest segment concentration is listed as 5.7 ng/l. Table 9 lists the highest concentration as 4.13 ng/l. If 5.7 ng/l is incorrect, then the TMDL load would change. Also, under the TMDL load, a sentence reads that the estimated current loading to the basin is 2,100 g/year. This should be 5,400g/year.

Response

The correct highest predicted concentration is 4.1 ng/l. The TMDL calculations have been corrected.

Comment

The commenter indicates in Section 10.2 - under Option A, 1st paragraph, a sentence states that the sum of the individual wasteloads is 0.01 kg/year. However, according to the data in Table 10, the sum of the two wasteloads equals .10kg/year, which is very close to the entire wasteload allocation of 0.11 kg/year. Since there are 6 other facilities that weren't included in the calculation, it looks like not enough of the TMDL is given to point sources to allow them to even discharge at the water quality target.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 - Table 10 - The Kingsland St. Marys WPCP - GA0021547 is inactive and should not be included in the table; it should be Kingsland St. Marys WPCP - GA0037800.

Response

The tables in the TMDL have been changed to reflect this information.

Comment

The commenter indicates in Section 2 - TMDL says that phase 2 will be done in 2011. According to Georgia's current river basin planning cycle, we are to issue permits in the Alapaha River Basin with those in the Suwannee in 2011. The TMDL would need to be done in 2010. Also, the second to last sentence in Section 2.2 says that Georgia will reissue permits in the Alapaha River Basin in 2012, as stated above, this is scheduled to be done in 2011.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 6.1 - Table 2 - The table includes a number of PID permits; These are facilities like hotels. EPD does not plan to require PIDs to monitor for mercury using Method 1631 as these facilities are generally very small and the cost of the test would be prohibitive and the complexity of taking a sample properly great enough that we would not necessarily trust the data even if it were submitted due to contamination concerns.

Response

Table 2 in Section 6.1 indicates all the dischargers in the Alapaha watershed; Section 10 describes which of these facilities will be considered for monitoring and permit limits.

Comment

The commenter indicates in Section 2 - TMDL says that phase 2 will be done in 2011. According to Georgia's current river basin planning cycle, we are to issue permits in the Withlacoochee River Basin with those in the Suwannee in 2011. The TMDL would need to be done in 2010. Also, the second to last sentence in Section 2.2 says that Georgia will reissue permits in the Withlacoochee River Basin in 2012, as stated above, this is scheduled to be done in 2011.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 9.2 - Using the numbers provided in the TMDL, we calculate the TMDL load to be 7.3 kg/year instead of 6.9 kg/year. Below the formula for the TMDL load, the estimated current loading to the Withlacoochee is given as 6,900 g/year. This should be 9,700 g/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 (under Option A) The TMDL says that the sum of these individual wasteloads in 0.01 kg/year. Assuming a facility discharges at least 1 MGD (which all of the POTWs listed do) then each would discharge 0.01 kg/year. Therefore, when the wasteloads of all five are added, they will discharge more than 0.01 kg/year.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 10.2 (under Option B) the TMDL says that EPA assumes that the feasible/achievable mercury load reductions for all 5 facilities will be less than 0.04 kg/year. Where did this number come from? The cumulative wasteload provided earlier in the TMDL was 0.07 kg/year. The 0.04 kg/year number can also be found in paragraph 5 under option B.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 5.1 states that there are 4 NPDES permitted facilities that discharge to the segment, but they aren't named; they should be named.

Response

The TMDL document was modified to add a table naming the 4 dischargers.

Comment

The commenter indicates in Section 7 - The wasteload is given at 0.007 g/year. If the four facilities discharge a total of more than 0.0013 MGD and the concentration of mercury in their effluent is equal to the water quality target of 4 ng/l, then they will not

meet the wasteload. The TMDL gives about 0.1% of the total mercury allocation to the wasteload. More of the allocation needs to be given to the point sources.

Response

The wasteload allocation was recalculated taking into account the actual flow rates for the individual NPDES permits.

Comment

The commenter indicates in Section 5.1 states that there are 30 NPDES permitted facilities that discharge to the listed segments, but they aren't named; they should be named.

Response

A table of the permitted facilities that discharge or influence the listed segments has been added to the TMDL document.

Comment

The commenter indicates the wasteload is given as 0.01 g/year. This is only 0.1% of the entire load. Also if the 30 facilities discharge at the water quality target of 4.9 ng/l and the sum of the flow of all 30 facilities is greater than 0.0014 MGD (it will be greater than this), then the wasteload will not be met. The wasteload needs to be higher.

Response

The wasteload allocation calculation has been adjusted to represent all of the facilities that have a permitted flow into the listed segment. The wasteload is 0.18 kg/yr.

Comment

The commenter indicates in Section 5.2.3, Table 5 - the maximum concentration to total mercury for trophic level 4 is listed as 0.32, bu the highest number in the table 4 is 0.24.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates in Section 7, second sentence - states that there are point sources discharging to the listed segment. This contradicts other statements in the TMDL and the wasteload allocation is given as zero.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates the TMDL says that there are no discharges to Lake Oconee and no wasteload is given. Writing the TMDL with a wasteload of zero would prevent

any discharge to the lake in the future. Any new source should be required to meet the water quality target for mercury and should also receive some benefit for dilution if it is available.

Response

The TMDL was modified to allow for future growth and the permitting of an NPDES facility that could discharge to Lake Oconee.

Comment

The commenter indicates in Section 5.1 of the TMDL give the wasteload allocation as 0.002 g/year that is about 0.004% of the TMDL load. Even if the point sources discharge at the water quality target for mercury, they would exceed this number. It needs to be raised.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates EPA is statutorily barred from establishing water quality based effluent limitations set forth in the TMDLs. Consistent with the permitting scheme and delegation of authority established under the CWA, EPA should identify the sum of the individual wasteload allocations for point sources, but should leave it up to the State's permitting authority to determine how the wasteload allocations should be divided among point sources, and ultimately, how the TMDLs should be implemented. By limiting the State to two options, EPA is acting beyond the scope of its authority.

Response

EPA disagrees that it lacks the authority to establish wasteload allocations as part of this TMDL. Wasteload allocations have been a required element of TMDLs since 1985. See 40 C.F.R. § 130.2(i). Any challenge to the presence of wasteload allocations within TMDLs is essentially a challenge to EPA's 1985 TMDL regulations and therefore is outside the scope of this action. EPA also notes that its regulations since 1989 have made it clear that water quality-based effluent limitations must be consistent with the assumptions of any available wasteload allocation prepared pursuant to EPA's TMDL regulations. See 40 C.F.R. § 122.44(d)(1)(vii)(B); 54 Fed. Reg. 23868, 23879 (June 2, 1989). In addition, the 1987 amendments to the Clean Water Act acknowledge the relationship between TMDLs, wasteload allocations and the ensuing effluent limitations. See CWA section 303(d)(4). Therefore, EPA has ample authority to establish wasteload allocations for point sources that discharge or are likely to discharge mercury to the waterbody.

Comment

The commenter indicates that EPA is acting beyond its authority in prohibiting increases in mass loading from permitted dischargers. (Ocmulgee TMDL, Page 3 and Satilla TMDL, page 40). For reasons stated above, we believe this limitation illegally

encroaches upon the States authority to impose permit effluent limitations and may impact the State's flexibility in issuing new permits.

Response

The facilities that discharge to the impaired segment are given a cumulative wasteload allocation. If sufficient data is presented to the State permitting authority, permit limits can be adjusted to allow sharing of the TMDL wasteload allocation as long as the sum of these wasteload allocations does not exceed that specified in the TMDL.

Comment

The commenter indicates EPA's rejection of Georgia's 12 ng/l water quality standard is contrary to law. EPA erroneously relies on an improper standard in proposing these TMDLs. EPA refers to a letter it received from the State of Georgia as justification for its current approach. That letter, according to EPA, provides a "numeric interpretation of the Georgia narrative water quality standard for mercury." The use of the letter in this TMDL violates the Georgia Administrative Procedure Act, O.C.G.A. " 50-13-1 et seq, and Section 303 of the CWA, 33 U.S.C. ' 1312. The commenter also notes that the use of a narrative standard is barred, as a matter of law, when numeric criteria exist. The TMDL regulations provide that "for purposes of listing waters, applicable water quality standards means numeric criterion for a priority pollutant". In this case, Georgia does have a numeric water quality standard of 12 ng/l for mercury.** (Comment also in general comments table).

Response

EPA disagrees that its water quality target for this TMDL suffers from legal deficiencies. As discussed in elsewhere in these Comment Responses, Georgia has not adopted a numeric water quality criterion for mercury (or methylmercury) for the protection of human health. Georgia, however, has adopted a narrative water quality criterion to protect human health, which is found in Section 5(e) of Chapter 391-3-6.03. This narrative water quality criterion provides: "All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life." EPA has determined that the Savannah River contains levels of mercury – from municipal, industrial and other (i.e., air) sources – at levels that are harmful to humans who consume fish from the River. Therefore, EPA has concluded that the Savannah River exceeds Georgia's narrative water quality criterion for toxic pollutants. In view of that conclusion, EPA has the authority to establish a TMDL to address that impairment. Congress did not limit the term "applicable water quality standards" in CWA section 303(d)(1)(C) to standards based upon numeric criteria, and EPA's 1985 regulations at 40 C.F.R. § 130.7(b)(3) define "applicable water quality standards" to refer to "those water quality standards established under section 303 of the Act, including . . . narrative criteria." See also 40 C.F.R. § 130.7(c)(1) ("TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS"). Indeed, the use of

narrative water quality criteria has been explicitly recognized by the courts when applying "applicable standards" in the TMDL context, see Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1521 & n.6, 1524 (9th Cir. 1995), as well as in the NPDES permitting context, see See, e.g., American Paper Institute v. EPA, 996 F.2d 346 (D.C. Cir. 1993). Therefore, EPA is authorized to apply Georgia's narrative water quality criterion for toxic pollutants in establishing this TMDL.[1]

Some commenters assert that EPA's interpretation of Georgia's narrative water quality in effect usurps the primary responsibility accorded to the states to develop water quality standards. They maintain that EPA's interpretation is tantamount to a revision of the state's adopted and approved numeric water quality criterion for mercury, and that this de facto revision is unlawful because EPA failed to follow the procedures established in Clean Water Act section 303(c) for adoption of federal water quality standards. These commenters conclude that the ensuing water quality target (and the TMDL) is invalid.

EPA disagrees with these comments. First, contrary to the commenters' assertions, EPA is not developing a federal water quality standard to supersede Georgia's standard, but rather is translating a water quality standard that has been duly adopted by the State and certified by the Attorney General. The state's direction that "[a]ll waters shall be free from toxic . . . substances . . . in amounts . . . which are harmful to humans" signifies the state's clear intent that this criterion be translated as necessary in order to be applied in the State's water quality based approach to pollution control (e.g., through the NPDES permitting process, the TMDL program or other applicable state programs). It means that a permit writer or TMDL-developing authority applying the narrative criterion needs to translate the narrative criterion and thus calculate the amount of a toxic pollutant that may be introduced to the water without producing a toxic effect in humans. That calculated amount thus becomes the target for the permit limit (or in the case of a TMDL, the target for the loading capacity) in fulfillment of the explicit intention of the narrative criterion: to avert toxic effects to humans. Thus, far from usurping the state's responsibility, EPA's act of translating the narrative criterion gives significance to the states own regulatory structure.

The fact that Georgia has also adopted a numeric water quality criterion of 12 ng/l for the protection of aquatic life is irrelevant. The Savannah River is listed as not meeting uses designed to protect human health. Furthermore, as discussed in the elsewhere in these comment responses, EPA has determined, based on the site-specific data collected specifically for this TMDL, that a numeric value of 12 ng/l will not protect the health of individuals consuming 17.5 g/day fish from the Savannah River. Accordingly, while at one time EPA may have judged a value of 12 ng/l to be adequately protective of both aquatic life and human health uses in Georgia, its analysis of current data indicates that this is no longer the case. Therefore, EPA properly chose to apply Georgia's narrative water quality criterion for the protection of human health from the effects of toxics under these facts. EPA reasonably decided it would not be appropriate to ignore the narrative criteria applicable to human health merely because a less protective numeric criterion for

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[1] EPA has no data showing that the numeric water quality criterion for the protection of aquatic life is being exceeded. Therefore, that criterion is not applicable to this TMDL.

aquatic life exists. The narrative and numeric criteria for mercury are complementary; in the absence of a numeric water quality criterion explicitly calculated to protect human health, it is appropriate to use the narrative criterion when human health is at issue.

EPA further notes that the federal water quality standards regulations at 40 C.F.R. Part 131 requires adoption of water quality criteria that protect designated uses. Such criteria must be based on sound scientific rationale, must contain sufficient parameters to protect the designated use, and may be expressed in either narrative or numeric form. In adopting water quality criteria, States, Territories and authorized Tribes must establish numerical values based on 304(a) criteria, 304(a) criteria modified to reflect site specific conditions, or other scientifically defensible methods, or establish narrative criteria where numerical criteria cannot be determined, or to supplement narrative criteria. See 40 C.F.R. § 131.11. Narrative criteria are descriptions of the conditions of the waterbody necessary to attain and maintain its designated use, while numeric criteria are values expressed as levels, concentrations, toxicity units or other measures that quantitatively define the permissible level of protection. To adequately protect designated uses, EPA believes water quality standards must include both narrative and numeric water quality criteria. EPA has in the past and may in the future promulgate water quality criteria, including both narrative and numeric criteria for States, Territories or authorized Tribes. See 40 C.F.R. § 131.35; 54 Fed. Reg. 28622 (July, 7, 1989).

In certain circumstances it is possible that numeric water quality criteria can be met, and the designated uses still not be achieved. For example, factors such as food web structure, the concentration of dissolved organic carbon in the ambient water, and accumulations in the sediment may affect uptake of mercury into fish flesh on a site-specific basis. In these circumstances, EPA recommends States and authorized Tribes translate the applicable narrative criteria on a site-specific basis, or adopt site-specific numeric criteria, to protect designated uses. However, ultimately, determining the attainment of the designated use makes the final determination of whether the water quality standard is attained.

Second, as noted above, EPA's act of interpreting the State's narrative criterion ensures the level of protection established by the State for the Savannah River through the adoption of the designated use of fishing will be achieved. Accordingly, this is not a situation where EPA has – or should have – determined that Georgia's current water quality standards are inconsistent with the Clean Water Act. To the contrary EPA has already determined that the Georgia standards met the requirements of the CWA and the implementing federal regulations when approving the narrative criterion providing "[a]ll waters shall be free from toxic . . . substances . . . in amounts . . . which are harmful to humans". By using site-specific information, EPA is translating Georgia's duly adopted narrative criterion in a way that ensures that the designated uses are protected as required by the Clean Water Act. The commenters imply that this situation is similar to one where a state had adopted and EPA had approved a numeric water quality criterion for the protection of human health that new science and/or data now shows to be unprotective. That is not the case. Rather, EPA is appropriately turning to the narrative criteria to account for the unique site-specific conditions of the Savannah River as they affect the methylation and uptake of mercury into the food chain, and ultimately affect human health. Thus, in this case, and based upon site specific data, EPA properly decided to translate and apply the narrative criterion.

Third, EPA's act of interpreting Georgia's narrative criterion does not abridge public participation or otherwise deviate from the procedures associated with the adoption of water quality standards. As noted above, EPA is interpreting a criterion that was duly adopted by the state pursuant to section 303(c), which requires public participation. Thus, EPA is not establishing a federal water quality standard without regard for the requirements of the CWA or the APA; rather, it is translating the existing Georgia standard in order to establish a water quality target for the TMDL. Thus, the public participation requirements and rulemaking procedures of section 303(c) do not apply. Moreover, EPA has explicitly sought (and received) public comments regarding its interpretation of the narrative criterion, consistent with 40 C.F.R. §130.7(c)(1)(ii), thereby allowing scientific and policy issues to be aired. During the public comment period on this TMDL, affected dischargers, the general public, and other interested parties could and did submit information that they believe should be considered in calculating the water quality target. Elsewhere in this record, EPA has provided a written response to those comments. Moreover, the appropriateness of the water quality target based on EPA's interpretation is subject to judicial review.[2]

EPA notes that the CWA and the implementing water quality standards at 40 CFR 131 do not require that States, Territories and authorized Tribes adopt translator procedures for their narrative criteria. Where adopted into water quality standards, they are subject to EPA review and approval. Where not adopted into water quality standards but established as guidance, EPA reviews such procedures in reviewing and taking action to determine whether the underlying narrative criteria meet the requirements of the CWA and the implementing federal regulations. Such procedures must, in the final analysis, be scientifically defensible and protect the designated use. Some States, Territories and authorized Tribes adopt into their water quality standards translator procedures by which to derive a quantified numeric interpretation of the narrative criterion. However, others do not, or may choose to establish such procedures as guidance for interpreting the applicable narrative criteria site-specifically. The choice of whether and how to establish translation procedures is left to the prerogative of the State, Territory or authorized Tribe. EPA acknowledges that such a choice must be implemented consistent with State's governing administrative laws and procedures.

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[2] EPA also disagrees with comments that its interpretation of the water quality criterion constitutes a rule subject to procedures under the Administrative Procedure Act. As in any adjudicatory proceeding, the TMDL authority applies an existing principle of general applicability, in this case, the state narrative water quality criterion, to a particular situation, e.g., the development of a water quality target for the purpose of determining, for a particular pollutant, the loading capacity of and loading allocations to a particular receiving water. The calculated criterion and resulting water quality target then have precedential effect only to the extent justified by the facts of subsequent applications. As with a judicial decision – but unlike a rulemaking -- different facts could dictate a different result, i.e., a different calculated criterion and a different water quality target. See American Littoral Society, et al. v. EPA, No. 96-339 (MLC), slip op. at 52-61 (Dec. 21, 2000) (holding that EPA TMDL and listing decisions under section 303(d) constitute informal adjudications, not informal rulemaking).

EPA also recognizes that narrative water quality criteria are not expressed as numbers and thus are not directly amenable to TMDL calculations. However, as expressed in EPA guidance, a State, Territory, authorized Tribe, or EPA can quantify narrative criteria for use on regulatory actions. EPA has also used such an approach in promulgating water quality standards for States, Territories and authorized Tribes. See 40 C.F.R. Part 132, Appendix F, Procedure 3 (referring to "values," which are that rule's equivalent to quantifications of narrative criteria); 60 Fed. Reg. 15366 (March 23, 1995) (Great Lakes Water Quality Initiative); 57 Fed. Reg. 60848 (November 19, 1991) (National Toxics Rule); see also Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90/001 (March 1991); Guidance for Water-Quality-based Decisions: The TMDL Process," EPA 440-4-91-001 (1991). Finally EPA notes States routinely rely on narrative criteria to implement whole effluent toxicity (WET) requirements (EPA/505/2-90-001 and 40 CFR 132, Appendix F, Procedure 6). WET is just one of several ways in which States translate narrative criteria to ensure that designated uses are maintained and protected. Therefore, EPA continues to believe that TMDLs can be calculated based on narrative criteria when those criteria can be quantified.

Fourth, EPA disagrees with comments asserting that EPA's interpretation is procedurally flawed because EPA did not promulgate a mechanism by which to "translate" Georgia's narrative water quality criterion. EPA agrees with commenters that, had Georgia chosen to establish a specific translator mechanism for its narrative criteria (e.g., in order to bind permit writers or TMDL authorities when interpreting a narrative or to meet the requirements of CWA section 303(c)(2)(B)), it would have needed to do so as part of its water quality standards adoption process. See Water Quality Standards Handbook: Second Edition (1994), at 3-16, 3-22. However, Georgia has not adopted such a mechanism. Therefore, it was appropriate for EPA to interpret Georgia's narrative water quality criterion in the context of this TMDL. Under these circumstances, it would be inappropriate and intrusive for EPA to promulgate a regulation of general applicability that establishes a translator mechanism for Georgia's narrative water quality criterion.

Finally, EPA notes that calculating a water quality target based on a state's narrative criterion is analogous to the act of deriving water quality-based permit limits from such criteria. EPA has promulgated and successfully defended a regulation that describes three different approaches that permitting authorities can employ to interpret a state's narrative water quality criterion. See 40 C.F.R. § 122.44(d)(1)(vi); see also American Paper Institute v. EPA, 996 F.2d 346 (D.C. Cir. 1993) (upholding regulation as consistent with the purposes of the Clean Water Act). Two approaches are relevant here. One way is using the water quality criterion recommendations published by EPA under CWA section 304(a). See 40 C.F.R. § 122.44(d)(1)(vi)(B). A second way is to calculate a numeric criterion that the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use. See 40 C.F.R. § 122.44(d)(1)(vi)(A). Under this approach, the permitting authority may use a proposed state numeric criterion or an explicit state policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information, including predicted local human consumption of aquatic foods, the state's determination of an appropriate risk level, and other site-specific scientific data that may not be included in EPA's criteria documents. See id; see also 54 Fed. Reg. 23,868, 23,876 (June 2, 1989) (describing option). Under this approach, the authority interpreting the state narrative is

authorized to employ any information that it believes will produce a limitation that will attain and maintain the water quality criteria and fully protect the designated uses. EPA has employed the second approach in interpreting Georgia's narrative water quality criterion, albeit for a slightly different – although related – purpose. Because the wasteload allocations in today's TMDL ultimately will become the basis for NPDES permit limits for certain dischargers, see 40 C.F.R. § 122.44(d)(1)(vii)(B), it is reasonable for EPA to apply the principles of the permitting regulation in the course of developing this TMDL.

Comment

The commenter indicates Georgia's numerical standard of 12 ng/l for the Georgia DNR promulgated mercury based upon fish consumption. This standard is the only validly promulgated and applicable standard to the proposed TMDLs. EPA cannot, without revising Georgia's water quality standards through a rulemaking, reject Georgia's standard in its development of a TMDL.** (Comment also in general comments table.)

Response

EPA disagrees that its water quality target for this TMDL suffers from legal deficiencies. As discussed in elsewhere in these Comment Responses, Georgia has not adopted a numeric water quality criterion for mercury (or methylmercury) for the protection of human health. Georgia, however, has adopted a narrative water quality criterion to protect human health, which is found in Section 5(e) of Chapter 391-3-6.03. This narrative water quality criterion provides: "All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life." Georgia has also developed a protocol to determine whether this narrative water quality standard has been exceeded in the case of residual mercury in fish tissue. Based on Georgia's interpretation of its narrative water quality standard, EPA has determined that the [name] River contains levels of mercury – from municipal, industrial and other (i.e., air) sources – at levels that are harmful to humans who consume fish from the River. Therefore, EPA has concluded that the [name] River exceeds Georgia's narrative water quality criterion for toxic pollutants. In view of that conclusion, EPA has the authority to establish a TMDL to address that impairment. Congress did not limit the term "applicable water quality standards" in CWA section 303(d)(1)(C) to standards based upon numeric criteria, and EPA's 1985 regulations at 40 C.F.R. § 130.7(b)(3) define "applicable water quality standards" to refer to "those water quality standards established under section 303 of the Act, including . . . narrative criteria." See also 40 C.F.R. § 130.7(c)(1) ("TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS"). Indeed, the use of narrative water quality criteria has been explicitly recognized by the courts when applying "applicable standards" in the TMDL context, see Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1521 & n.6, 1524 (9th Cir. 1995), as well as in the NPDES permitting context, see See, e.g., American Paper Institute v. EPA,

996 F.2d 346 (D.C. Cir. 1993). Therefore, EPA is authorized to apply Georgia's narrative water quality criterion for toxic pollutants in establishing this TMDL.3

Some commenters assert that EPA's interpretation of Georgia's narrative water quality in effect usurps the primary responsibility accorded to the states to develop water quality standards. They maintain that EPA's interpretation is tantamount to a revision of the state's adopted and approved numeric water quality criterion for mercury, and that this de facto revision is unlawful because EPA failed to follow the procedures established in Clean Water Act section 303(c) for adoption of federal water quality standards. These commenters conclude that the ensuing water quality target (and the TMDL) is invalid.

EPA disagrees with these comments. First, contrary to the commenters' assertions, EPA is not developing a federal water quality standard to supersede Georgia's standard, but rather is relying on the State's own protocol to translate a water quality standard that has been duly adopted by the State and certified by the Attorney General. The state's direction that "[a]ll waters shall be free from toxic . . . substances . . . in amounts . . . which are harmful to humans" signifies the state's clear intent that this criterion be translated as necessary in order to be applied in the State's water quality based approach to pollution control (e.g., through the NPDES permitting process, the TMDL program or other applicable state programs). It means that a permit writer or TMDL-developing authority applying the narrative criterion needs to translate the narrative criterion and thus calculate the amount of a toxic pollutant that may be introduced to the water without producing a toxic effect in humans. Georgia has recently gone farther, and has provided the calculation to be used in translating the narrative criterion. That calculated amount thus becomes the target for the permit limit (or in the case of a TMDL, the target for the loading capacity) in fulfillment of the explicit intention of the narrative criterion: to avert toxic effects to humans.

The fact that Georgia has also adopted a numeric water quality criterion of 12 ng/l for the protection of aquatic life is irrelevant. The [name] River is listed as not meeting uses designed to protect human health. Furthermore, as discussed in the elsewhere in these comment responses, EPA has determined, based on the site-specific data collected specifically for this TMDL and the calculation used by Georgia to interpret its narrative water quality standard, that a numeric value of 12 ng/l will not protect the health of individuals consuming 17.5 g/day fish from the [name] River. Accordingly, while at one time EPA may have judged a value of 12 ng/l to be adequately protective of both aquatic life and human health uses in Georgia, its analysis of current data indicates that this is no longer the case. Therefore, EPA properly chose to apply Georgia's narrative water quality criterion for the protection of human health from the effects of toxics under these

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[3] EPA has no data showing that the [name] River's numeric water quality criterion for the protection of aquatic life is being exceeded. Therefore, that criterion is not applicable to this TMDL.

facts. EPA reasonably decided it would not be appropriate to ignore the narrative criteria applicable to human health merely because a less protective numeric criterion for aquatic life exists. The narrative and numeric criteria for mercury are complementary; in the absence of a numeric water quality criterion explicitly calculated to protect human health, it is appropriate to use the narrative criterion when human health is at issue.

EPA further notes that the federal water quality standards regulations at 40 C.F.R. Part 131 require adoption of water quality criteria that protect designated uses. Such criteria must be based on sound scientific rationale, must contain sufficient parameters to protect the designated use, and may be expressed in either narrative or numeric form. In adopting water quality criteria, States, Territories and authorized Tribes must establish numerical values based on 304(a) criteria, 304(a) criteria modified to reflect site specific conditions, or other scientifically defensible methods, or establish narrative criteria where numerical criteria cannot be determined, or to supplement narrative criteria. See 40 C.F.R. § 131.11. Narrative criteria are descriptions of the conditions of the waterbody necessary to attain and maintain its designated use, while numeric criteria are values expressed as levels, concentrations, toxicity units or other measures which quantitatively define the permissible level of protection. To adequately protect designated uses, EPA believes water quality standards must include both narrative and numeric water quality criteria. EPA has in the past and may in the future promulgate water quality criteria, including both narrative and numeric criteria for States, Territories or authorized Tribes. See 40 C.F.R. § 131.35; 54 Fed. Reg. 28622 (July, 7, 1989).

In certain circumstances it is possible that numeric water quality criteria can be met, and the designated uses still not be achieved. For example, factors such as food web structure, the concentration of dissolved organic carbon in the ambient water, and accumulations in the sediment may effect uptake of mercury into fish flesh on a site specific basis. In these circumstances, EPA recommends States and authorized Tribes translate the applicable narrative criteria on a site specific basis, or adopt site specific numeric criteria, to protect designated uses. However, ultimately, the final determination of whether the water quality standard is attained is made by determining the attainment of the designated use.

Second, as noted above, EPA's act of interpreting the State's narrative criterion ensures the level of protection established by the State for the [name] River through the adoption of the designated use of fishing will be achieved. Accordingly, this is not a situation where EPA has – or should have – determined that Georgia's current water quality standards are inconsistent with the Clean Water Act. To the contrary EPA has already determined that the Georgia standards met the requirements of the CWA and the implementing federal regulations when approving the narrative criterion providing "[a]ll waters shall be free from toxic . . . substances . . . in amounts . . . which are harmful to humans". By using site-specific information, EPA is translating Georgia's duly adopted narrative criterion in a way that ensures that the designated uses are protected as

required by the Clean Water Act. The commenters imply that this situation is similar to one where a state had adopted and EPA had approved a numeric water quality criterion for the protection of human health that new science and/or data now shows to be unprotective. That is not the case. Rather, EPA is appropriately turning to the narrative criteria to account for the unique site specific conditions of the [name] River as they affect the methylation and uptake of mercury into the food chain, and ultimately affect human health. Thus, in this case, and based upon site specific data, EPA properly decided to translate and apply the narrative criterion.

Third, EPA's act of interpreting Georgia's narrative criterion does not abridge public participation or otherwise deviate from the procedures associated with the adoption of water quality standards. As noted above, EPA is using a state developed protocol to interprete a criterion that was duly adopted by the state pursuant to section 303(c), which requires public participation. Thus, EPA is not establishing a federal water quality standard without regard for the requirements of the CWA or the APA; rather, it is translating the existing Georgia standard in order to establish a water quality target for the TMDL. Thus, the public participation requirements and rulemaking procedures of section 303(c) do not apply. Moreover, EPA has explicitly sought (and received) public comments regarding its interpretation of the narrative criterion, consistent with 40 C.F.R. §130.7(c)(1)(ii), thereby allowing scientific and policy issues to be aired. During the public comment period on this TMDL, affected dischargers, the general public, and other interested parties could and did submit information that they believe should be considered in calculating the water quality target. Elsewhere in this record, EPA has provided a written response to those comments. Moreover, the appropriateness of the water quality target based on EPA's interpretation is subject to judicial review.4

EPA notes that the CWA and the implementing water quality standards at 40 CFR 131 do not require that States, Territories and authorized Tribes adopt translator procedures for their narrative criteria. Where adopted into water quality

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4 EPA also disagrees with comments that its interpretation of the water quality criterion constitutes a rule subject to procedures under the Administrative Procedure Act. As in any adjudicatory proceeding, the TMDL authority applies an existing principle of general applicability, in this case, the state narrative water quality criterion, to a particular situation, e.g., the development of a water quality target for the purpose of determining, for a particular pollutant, the loading capacity of and loading allocations to a particular receiving water. The calculated criterion and resulting water quality target then have precedential effect only to the extent justified by the facts of subsequent applications. As with a judicial decision – but unlike a rulemaking -- different facts could dictate a different result, i.e., a different calculated criterion and a different water quality target. See American Littoral Society, et al. v. EPA, No. 96-339 (MLC), slip op. at 52-61 (Dec. 21, 2000) (holding that EPA TMDL and listing decisions under section 303(d) constitute informal adjudications, not informal rulemaking).

standards, they are subject to EPA review and approval. Where not adopted into water quality standards but established as guidance, EPA reviews such procedures in reviewing and taking action to determine whether the underlying narrative criteria meet the requirements of the CWA and the implementing federal regulations. Such procedures must, in the final analysis, be scientifically defensible and protect the designated use. Some States, Territories and authorized Tribes adopt into their water quality standards translator procedures by which to derive a quantified numeric interpretation of the narrative criterion. However, others do not, or may chose to establish such procedures as guidance for interpreting the applicable narrative criteria site-specifically. The choice of whether and how to establish translation procedures is left to the prerogative of the State, Territory or authorized Tribe. EPA acknowledges that such a choice must be implemented consistent with State's governing administrative laws and procedures.

EPA also recognizes that narrative water quality criteria are not expressed as numbers and thus are not directly amenable to TMDL calculations. However, as expressed in EPA guidance, a State, Territory, authorized Tribe, or EPA can quantify narrative criteria for use on regulatory actions. EPA has also used such an approach in promulgating water quality standards for States, Territories and authorized Tribes. See 40 C.F.R. Part 132, Appendix F, Procedure 3 (referring to "values," which are that rule's equivalent to quantifications of narrative criteria) 60 Fed. Reg. 15366 (March 23, 1995) (Great Lakes Water Quality Initiative); 57 Fed. Reg. 60848 (November 19, 1991) (National Toxics Rule); see also Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90/001 (March 1991); Guidance for Water-Quality-based Decisions: The TMDL Process," EPA 440-4-91-001 (1991). Finally EPA notes States routinely rely on narrative criteria to implement whole effluent toxicity (WET) requirements (EPA/505/2-90-001 and 40 CFR 132, Appendix F, Procedure 6). WET is just one of several ways in which States translate narrative criteria to ensure that designated uses are maintained and protected. Therefore, EPA continues to believe that TMDLs can be calculated based on narrative criteria when those criteria can be quantified.

Finally, EPA notes that calculating a water quality target based on a state's narrative criterion is analogous to the act of deriving water quality-based permit limits from such criteria. EPA has promulgated and successfully defended a regulation that describes three different approaches that permitting authorities can employ to interpret a state's narrative water quality criterion. See 40 C.F.R. § 122.44(d)(1)(vi); see also American Paper Institute v. EPA, 996 F.2d 346 (D.C. Cir. 1993) (upholding regulation as consistent with the purposes of the Clean Water Act). One way is to calculate a numeric criterion that the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use. See 40 C.F.R. § 122.44(d)(1)(vi)(A). Under this approach, the permitting authority may use a proposed state numeric criterion or an explicit state policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information, including

predicted local human consumption of aquatic foods, the state's determination of an appropriate risk level, and other site-specific scientific data that may not be included in EPA's criteria documents. See id; see also 54 Fed. Reg. 23,868, 23,876 (June 2, 1989) (describing option). Under this approach, the authority interpreting the state narrative is authorized to employ any information that it believes will produce a limitation that will attain and maintain the water quality criteria and fully protect the designated uses. EPA has employed the second approach in interpreting Georgia's narrative water quality criterion, albeit for a slightly different – although related – purpose. Because the wasteload allocations in today's TMDL ultimately will become the basis for NPDES permit limits for certain dischargers, see 40 C.F.R. § 122.44(d)(1)(vii)(B), it is reasonable for EPA to apply the principles of the permitting regulation in the course of developing this TMDL.

Comment

The commenter indicates EPA cannot, without going through the procedures identified above, establish an alternative water quality standard or interpret Georgia's narrative standard. EPA's attempts to interpret Georgia's narrative standard is particularly curious given that it is the Attorney General of the State of Georgia who has the authority to interpret state law and regulations.

Response

EPA did not interpret Georgia's narrative criterion as indicated by the commenter. Rather, EPA received an interpretation directly from the Environmental Protection Division (EPD) as to the applicable numeric translation for methylmercury in this instance. In short, the EPD has stated that the applicable criterion is 0.3mg/kg of methylmercury in fish tissue.

Comment

The commenter indicates EPA is illegally creating unique water quality standards for each "impaired" segment. Under EPA's current approach, EPA is proposing a unique water quality standard for each impaired segment. One EPA has determined that a waterbody is impaired; EPA calculates a "water quality target" (i.e water quality criterion) for mercury in the water column. Because the "Weighted Bioaccumulation Factor" and the "Fraction of the Total Mercury as Methylmercury" are different for each segment, so is the resulting mercury water quality target. This will result in various levels of Mercury in the different receiving water bodies

Response

The water quality standard that is being used to determine impairment is consistent among all the different waterbodies, 0.3 mg/kg mercury in fish tissue. Because of geographical and physiographical difference among the different watersheds, a different water quality target is determined using site-specific data.

Comment

The commenter indicates EPA's mercury translator is arbitrary and capricious. Comparing EPA's current methodology for these TMDLs to EPA's historical actions on mercury across the nation, the current methodology is arbitrary and capricious. ** (Comment also in general comments table.)

Response

EPA disagrees that its water quality target for this TMDL is arbitrary and capricious. Georgia has not yet adopted a numeric water quality criterion for mercury (or methylmercury) for the protection of human health. Georgia, however, has adopted a narrative water quality criterion to protect human health, which is found in Section 5(e) of Chapter 391-3-6.03. This narrative water quality criterion provides: "All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life." The Georgia Department of Natural Resources has informed EPA, in a letter dated July 30, 2001, that the Georgia Environmental Protection Division (EPD) plans to adopt EPA's new human health water quality criterion guidance of 0.3 mk/kg for methylmercury and that, until then, EPD plans to interpret the narrative criterion of "no toxics in toxic amounts" to mean that fish tissue is to contain 0.3 mg/kg of methylmercury or less.

Data available to EPA indicates that fish tissue from fish drawn from the waters for which today's TMDLs are being established contain methylmercury at levels greater than 0.3 mg/kg. Therefore, based on Georgia's interpretation of its own narrative water quality criterion for toxic pollutants, EPA has concluded that these waters exceed the applicable Georgia water quality standard for mercury. In view of that conclusion, the waters were included in Georgia's section 303(d) list and need a TMDL to address that impairment. Congress did not limit the term "applicable water quality standards" in CWA section 303(d)(1)(C) to standards based upon numeric criteria, and EPA's 1985 regulations at 40 C.F.R. § 130.7(b)(3) define "applicable water quality standards" to refer to "those water quality standards established under section 303 of the Act, including . . . narrative criteria." See also 40 C.F.R. § 130.7(c)(1) ("TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS"). Indeed, the use of narrative water quality criteria has been explicitly recognized by the courts when applying "applicable standards" in the TMDL context, see Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1521 & n.6, 1524 (9th Cir. 1995), as well as in the NPDES permitting context, see See, e.g., American Paper Institute v. EPA, 996 F.2d 346 (D.C. Cir. 1993). Therefore, EPA is authorized to apply Georgia's narrative water quality criterion for toxic

pollutants in establishing this TMDL, and to use Georgia's guidance to EPA in interpreting that criterion.[5]

EPA notes that calculating a water quality target based on a state's narrative criterion is analogous to the act of deriving water quality-based permit limits from such criteria. EPA has promulgated and successfully defended a regulation that describes three different approaches that permitting authorities can employ to interpret a state's narrative water quality criterion. See 40 C.F.R. § 122.44(d)(1)(vi); see also American Paper Institute v. EPA, 996 F.2d 346 (D.C. Cir. 1993) (upholding regulation as consistent with the purposes of the Clean Water Act). Two approaches are relevant here. One way is using the water quality criterion recommendations published by EPA under CWA section 304(a). See 40 C.F.R. § 122.44(d)(1)(vi)(B). A second way is to calculate a numeric criterion that the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use. See 40 C.F.R. § 122.44(d)(1)(vi)(A). Under this approach, the permitting authority may use a proposed state numeric criterion or an explicit state policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information, including predicted local human consumption of aquatic foods, the state's determination of an appropriate risk level, and other site-specific scientific data that may not be included in EPA's criteria documents. See id; see also 54 Fed. Reg. 23,868, 23,876 (June 2, 1989) (describing option). Under this approach, the authority interpreting the state narrative is authorized to employ any information that it believes will produce a limitation that will attain and maintain the water quality criteria and fully protect the designated uses. EPA has employed the second approach in interpreting Georgia's narrative water quality criterion, albeit for a slightly different – although related – purpose. Because the wasteload allocations in today's TMDL ultimately will become the basis for NPDES permit limits for certain dischargers, see 40 C.F.R. § 122.44(d)(1)(vii)(B), it is reasonable for EPA to apply the principles of the permitting regulation in the course of developing this TMDL.

Because for these Georgia TMDLs EPA is employing an explicit state policy interpreting the state's narrative water quality criterion, EPA's past acceptance of a mercury water quality 12 ng/l for TMDLs in other states is not relevant here. For more information about the TMDLs in the other states, see Comment Responses B.7 and B.8 of the Responsiveness Summary for the February 28, 2001, Savannah River TMDL.

Comment

The commenter indicates when Georgia established its fish consumption guidelines, however, an entirely different set of assumptions regarding fish consumption rates was

[5] EPA has no data showing that the State's numeric water quality criterion for the protection of aquatic life is being exceeded. Therefore, that criterion is not applicable to these TMDLs.

contemplated, and EPA has failed to assess and consider these rates in developing these TMDLs. EPA's higher consumption rate is unrealistic, overly conservative and results in a very stringent water quality targets. ** (Comment also in general comments table.)

Response

EPA did not use the fact that an advisory is in place to determine if the waterbody was impaired, if a TMDL was necessary and, subsequently, what the target for the TMDL should be. Rather, EPA and the State relied on the data underlying the advisory to make these determinations, consistent with State interpretation of their narrative water quality standard. As a point of fact, the consumption rate used in the TMDL calculations (17.5 g/d) is considerable less than the rate derived from the 1 meal per week advisory (~32g/d).

Comment

The commenter indicates inadequate and geographically limited sampling renders these TMDLs arbitrary and capricious. For the proposed TMDLs, EPA is relying on limited data collected primarily in March/April of 2001 (in some instances EPA does have data from 2000). Given the significance of the proposed TMDLs and their potential economic impact, EPA has failed to conduct needed sampling to arrive at truly representative data. Given the size of these affected basins, the potential for the data to change depending on the season, and the long-term implications of the TMDLs, we believe that EPA's reliance on limited data renders the proposed TMDLs arbitrary and capricious. ** (Comment also in general comments table.)

Response

Although there exists limiting sampling events, the data collected provided a site-specific data with which to develop this TMDL, EPA agrees that one/two sampling events may not be adequate to fully characterize mercury in the Middle/South Georgia watersheds. As such, EPA is using a Phased TMDL development approach to allow for the collection of additional data in the basin to better characterize mercury.

Comment

The commenter indicates EPA lacks the Authority to regulate point source dischargers to address problems it identifies as air deposition. By regulating point source dischargers due to a problem, which EPA readily states is due to non-water related sources, EPA exceeds its authority under the CWA. EPA's position regarding atmospheric deposition does not survive the scrutiny of a plain reading of the CWA. TMDLs are limited to assessment of point, nonpoint, natural background, and a margin of safety. Air deposition does not fall in any of these categories.** (Comment also in general comments table.)

Response

EPA disagrees with comments asserting that EPA lacks the statutory authority to establish a TMDL for waters impaired by atmospheric deposition. Clean Water Act section 303(d)(1) and EPA's implementing regulations require listing of all

waters that are not expected to achieve applicable water quality standards after application of technology-based and other required controls. Water quality standards adopted by states under CWA section 303(c), by their nature, are not identified with particular categories or sources of pollution, but rather express a desired condition of the receiving water. Similarly, EPA's TMDL regulations do not make any distinction between pollutants associated with sources directly regulated under the Clean Water Act (i.e., point sources) and sources not directly regulated under the CWA (i.e., nonpoint sources, including atmospheric deposition). See 40 C.F.R. 130.7(c)(1)(ii) ("TMDLs shall be established for all pollutants preventing or expected to prevent attainment of [applicable] WQS[.]"). They expressly require States to establish, as part of their TMDLs for substandard waters, both wasteload allocations (applicable to point sources, 40 C.F.R. 130.2(h)) and "load allocations," defined as "the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources," 40 C.F.R. 130.2(g). Facilities that emit pollutants directly to the air are not currently subject to NPDES permitting requirements for those air emissions. Therefore, their loadings are reflected in the TMDL in the form of load allocations, like a nonpoint source. To the extent that these comments question EPA's regulations, which have been in existence since 1985, they are outside the scope of this action. In a recent decision, a U.S. District Court recognized EPA's authority to require listing and TMDL establishment for waters that fail to meet applicable water quality standards, even due solely to nonpoint sources. See Pronsolino v. Marcus, 91 F. Supp.1337 2d (N.D. Ca. 2000).

EPA's consistently held interpretation that nonpoint sources are included in the Section 303(d)(1) and 303(d)(2) listing and TMDL processes is further reflected in a series of administrative guidance documents. See, e.g., Technical Guidance Manual for Performing Waste Load Allocations at 3-110 (1983) (FSER 196) (for purposes of writing allocations, "the sources may be combinations of point and nonpoint sources or exclusively point or nonpoint sources"); Guidance for Water Quality-Based Decisions: the TMDL Process at 2 (1991) (FSER 78) ("A TMDL should be developed and appropriate control actions taken on all pollution sources"; "the TMDL can be used to establish load reductions where there is impairment due to nonpoint sources") (emphasis added); Supplemental Guidance on Section 303(d) Implementation at 2 (1992) (FSER 112) (303(d) process "applies equally to segments affected by point sources only, a combination of point and nonpoint sources, and nonpoint sources only"); Guidance for 1994 Section 303(d) Lists at 1 (1993) (FSER 117) ("The section 303(d) list provides a comprehensive inventory of waterbodies impaired by all sources, including point sources, nonpoint sources, or a combination of both."); Water Quality Standards Handbook at 7-7 (1994) (a "allocates allowable loads to the contributing point and nonpoint source discharges"); New Policies for Establishing and Implementing Total Maximum Daily Loads, at 5 (1997) ("Implementation of load allocations for nonpoint sources * * * is essential"); National Clarifying Guidance for 1998 State and Territory Section 303(d) Listing Decisions, at 6 (1997) ("Consistent with long-standing EPA policy, regulations, and practice, States should include

waterbodies impaired by nonpoint sources alone[.]"). The 1997 National Clarifying Guidance specifically recognized that "States should include water bodies that do not meet applicable water quality standards due entirely or partially to pollutants from atmospheric deposition." Id. at 2. Moreover, EPA has consistently applied these policies and regulations in many listing decisions under Section 303(d)(1)(A), as well as the approval of nonpoint source load allocations in numerous TMDLs, including the decisions and calculations that gave rise to the claims in this case.

The commenters contend that Congress' use of the terms "effluent limitations," and "daily load" in "total maximum daily load," plainly limit the application of Section 303(d) to point sources. This view is in error because it fails to take into account the purpose of Section 303, and makes the applicability or proven failure of the technology-based limitations identified in Section 303(d) to point sources a condition precedent to 303(d) listing -- neither of which Congress intended. Congress' decision to include on the 303(d) list waterbodies where effluent limitations are not stringent enough to implement water quality standards reflects the approach adopted in the 1972 Amendments: that effluent limitations occupy the first line of attack in cleaning up the Nation's waters and that, when that effort is inadequate, states must turn to the safety net of a water quality-based approach. Given that it is the insufficiency of technology-based effluent limitations that triggers the need for a TMDL, it is hardly surprising to find a reference to "effluent limitations" in the listing provision in Section 303(d). Moreover, the applicability or proven failure of the technology-based limitations identified in Section 303(d) is not a condition precedent to 303(d) listing. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1527-28 (9th Cir. 1995). Contrary to the commenters' contention that the effluent limitations identified in Section 303(d)(1)(A) limit listing under Section 303(d) to waters where controls are subject to those effluent limitations, by its plain terms, all that Section 303(d)(1)(A) requires for listing is that the technology-based limitations identified in Section 303(d) be inadequate to achieve water quality standards.

As noted above, section 303(d) requires TMDLs for those listed waters where the impairment is caused by pollutants. Therefore, when atmospheric deposition is the transport route for a pollutant entering a waterbody and the pollutant exists at a level that causes impairment, then a TMDL must address in some fashion the contribution of that pollutant, including atmospheric deposition. Where there are loadings from atmospheric deposition, they contribute to the overall load of a pollutant within a waterbody and must be accounted for in the TMDL. Otherwise, the reductions in loadings may not be sufficient to attain water quality standards.

TMDLs themselves do not provide the authority for addressing impairments, including those caused by atmospheric deposition. Rather, TMDLs provide a process for identifying what load reductions are needed to meet water quality standards, including reductions from atmospheric deposition. TMDLs therefore do not override other Federal and State authorities and programs designed to

address air sources, such as programs to implement provisions of the Clean Air Act. Rather, they are tool to assist Federal, State and local governments to identify applicable control measures that could be used to address the water quality impairment.

As illustrated by this TMDL, EPA does agree that, to the extent possible, load reductions from air sources should be dealt with under other programs designed to address air sources. This TMDL relies in large part on reductions expected to be achieved through application of standards promulgated under Clean Air Act sections 112 and 129 that are expected to result in significant reductions in loadings of hazardous air pollutants to the nation's waters. See Analysis of Atmospheric Deposition of Mercury to the Savannah River Watershed (EPA 2001).

Comment

The commenter indicates Mercury is not the correct pollutant for the purpose of regulation to achieve certain fish tissue concentrations. EPA has no certainty that any mercury discharged into the listed waterbodies will ultimately be converted into methylmercury. In fact, although EPA attempts to support a direct correlation between inorganic mercury and methylmercury, data in the administrative record shows that there is in fact not a direct correlation.

Response

EPA disagrees that total mercury is not suitable for TMDL calculations. Because the sources of mercury come from various sources in different forms, the appropriate target would be total mercury. Furthermore, the TMDL does not rely on reductions in the inorganic mercury load to the water column but determines this reduction based upon how mercury cycles and breaks out to the different forms within the Savannah River. EPA recognizes the complexities in quantifying mercury loads from air deposition and in calculating the fate and transformation of mercury through the food chain. EPA has funded two pilot studies on how a State would proceed with a TMDL for mercury where a significant source of the load was by air deposition. The Florida pilot study found that the relationship between air sources and fish tissue could be quantified and current environmental conditions could be replicated. (The Wisconsin study has yet to produce results.) EPA believes this pilot shows that current modeling technology is suitable to support TMDL development for mercury, and that uncertainties regarding the relationship between allocations and the water quality standard would be addressed by the margin of safety, the monitoring plan, or revisions to the TMDL at a later date.

EPA recognizes there are questions concerning the reduction of mercury deposition and the time for water bodies and fish to recover. This lag effect has to do not only with the rate of mercury deposition, but also with the excessive environmental burden of mercury already present in the aquatic system. Over

time, with reduced loadings, much of the mercury in the aquatic environment may be volatilized from the system or be sequestered by deep burial.

The commenter sites the variability in methylmercury concentrations that are due to differences in methylation rates and proximity to sources of atmospheric emission and then attempts to contrast the variability in these data with the "relatively uniform maximum concentrations of methylmercury" in fish. Obviously, the appropriate comparison that needs to be made is with the full range of variability in fish Hg concentrations, not some upper percentile. There may be a large degree of scientific uncertainty regarding the rates at which methylation reactions take place, but there is general scientific agreement that more mercury in the environment results in more mercury in fish.

Comment

The commenter indicates EPA lacks the requisite legal authority to implement the proposed TMDLs.

Response

EPA believes that TMDL implementation – and implementation planning – is the responsibility of the State of Georgia, through its administration of the National Pollutant Discharge Elimination System (NPDES) point source permit program and through its administration of any regulatory or non-regulatory nonpoint source control programs.

A consent decree in the case of Sierra Club v. EPA, 1:94-cv-2501-MHS (N.D. Ga.), requires the State or EPA to develop TMDLs for all waterbodies on the State of Georgia's current 303(d) list according to a schedule contained in the decree. On July 24, 2001, the district court entered an order finding that the decree also requires EPA to develop TMDL implementation plans. EPA disagrees with the court's conclusion that implementation plans are required by the decree and has appealed the July 24, 2001, order. In the absence of that order, EPA would not propose an implementation plan for this TMDL. The Agency is moving forward, however, to comply with the obligations contained in the order.

Comment

The commenter indicates airborne mercury is both a local and long-range transport problem. To address the long-range transport problem, it is essential for EPA and lawmakers to pursue a national approach to dramatically reduce mercury emissions from power plants.

Response

EPA recognizes that local, regional, and long range transport of mercury in the atmosphere all contribute to deposition. This is reflected in the use of the RELMAP model studies as a basis for the atmospheric deposition analysis for each of these Geogia TMDLs for mercury (Phase I). For example, the national contribution is discussed in each atmospheric deposition document Section 2.2

"Baseline Deposition", where our calculations include estimated deposition "from U.S. sources" for particulate and elemental mercury.

The national importance of mercury emissions is recognized in EPA's Regulatory Finding to regulate mercury and other air toxics emissions from electric utility steam generating units, issued on December 14, 2000. Following that finding, and pursuant to the Clean Air Act, EPA is actively developing Maximum Achievable Control Technology (MACT) regulations for coal and oil fueled electric utilities. Under the MACT approach, standards or limits for emissions from coal burning power plants will be based on the best 12% of the industry practices which reduce mercury emissions. Similar standards will be developed using emissions-reduction technologies found in the best 12 % of oil-fired power plants. Proposed regulations are scheduled to be issued by December 15, 2003.g

Comment

The commenter indicates as the federal loophole in power plant mercury emissions contributes to mercury contamination of waterways in Georgia, steps also need to be taken to address the local impact of mercury emissions from large point sources, especially coal-fired power plants but all significant point sources that have adverse local impact.

Response

Local atmospheric deposition, and thus local impacts, of mercury are understood to occur when emissions from sources contain a significant percentage of the divalent species of mercury as a gas, referred to as Reactive Gaseous Mercury (RGM). This is recognized in EPA's RELMAP model and in our analyses for the Georgia TMDLs, where we list all emission sources in and within 100 kilometers of each watershed. (See Appendix I and Table 3 in each atmospheric deposition document.) The current MACT regulations for Municipal Waste Combustors, Medical Waste Incinerators, and Hazardous Waste Combustors in conjunction with regulations being developed under MACT for additional source categories are expected to control RGM and thus local impact, as well as other forms of mercury emissions and their long-range impacts. (See the Response to the first question from Commenter 5 for some details on the MACT process, which EPA is pursuing under the Clean Air Act to develop emissions regulations.)

Comment

The commenter indicates the need for multi-pollutant action on power plants as it relates to mercury emissions should be emphasized. While some mercury reductions should be achievable through much needed, co-control efforts to reduce Nox and SO2 emissions, the overarching goal must be to reach the level of mercury emission reduction that is adequate to protect public health.

Response

Studies done by EPA to support the finding (determination) to regulate mercury and other air toxics emitted from coal-fired and oil-fired power plants indicate

that certain types of controls for the criteria pollutants NOx and SO2 may also reduce mercury emissions. As these controls become increasingly applied under several programs, there can be some co-benefit of reduced mercury emissions and decreases in localized deposition of RGM. However, the degree of mercury reduction as a co-control varies with particulars of the type of coal used, the type of burner, and the kinds and sequence of post-combustion control devices. Detailed information on utility emissions data from 1999 and some models which discuss co-control benefits are available on EPA's Internet site "Air Toxics Website: Electric Utility Steam Generating Units, Section 112 Rule Making." (The address for this Website is: http://www.epa.gov/ttn/atw/combust/utiltox/utoxpg.html.)

Comment

The commenter indicates the use of the 1994-95 emissions inventory published by EPA in the Mercury study is appropriate if the deposition rates predicted by the RELMAP model are used as the basis for a TMDL in particular watersheds. However, where measured deposition rates (i.e., from the mercury Deposition Network) are used, the inventory should be updated; an alternative would be the 1996 National Toxics Inventory for industrial sources and the 1999 emissions estimates for utility boilers from the EPA's Information Collection Request. These data sets are more comparable to the time periods during which the MDN site was active (i.e., mid-late 90's).

Response

EPA recognizes the need to use appropriate emissions inventory data for the air deposition analysis. Even though actual measured deposition rates (MDN data) were used in the analyses, the MDN data provides only wet deposition rates for mercury. Dry deposition is also important in the analyses and the dry deposition estimates were developed by evaluating the wet and dry deposition rates from the RELMAP modeling and using them in conjunction with the MDN data to develop specific dry deposition estimates for each watershed (see Section 2.2 of the Air Deposition Analysis for a detailed discussion of this procedure). The results of the RELMAP modeling were also used to estimate the relative contribution to total mercury deposition of the various chemical-physical species of mercury and distinguishes deposition from "U.S. sources" from a general atmospheric "background" which includes international transport. Since the RELMAP modeling is heavily relied upon in the analyses, EPA believes that the emissions inventory used for the RELMAP modeling is appropriate for these TMDL analyses. EPA recognizes that newer mercury emissions inventories are becoming available. We plan to evaluate these updated inventories and may use them in future phases of the TMDL analyses, in conjunction with new and improved air models.

Comment

The commenter indicates according to the 1994-95 emissions inventory, both coal and oil-fired commercial and industrial boilers represent a fairly significant fraction of mercury emissions in Georgia.

Response

Analysis of the emissions inventory used in the atmospheric deposition documents for these TMDLs (RELMAP emissions inventory) indicates that coal and oil-fired boilers make up a significant fraction of mercury emissions for some of the airsheds/watersheds. The emissions data for each airshed are given in Appendix I and summarized in Table 3 of each atmospheric deposition document.

Comment

The commenter indicates the local impact of power plant emissions are underestimated. In the mercury TMDL development process, the focus in on reactive gas mercury (RGM) because of its tendency to deposit within 100 km of the source. Power plant RGM emissions are underestimated in this analysis. The specification profiles for power plants come from the Mercury Study (Volume III); however, at the time those specification profiles were developed there were no measured data and the profiles were developed based on engineering and scientific judgment.

Response

It is correct that the mercury emissions speciation profiles for power plants used in the air deposition analyses were taken from The Mercury Study Report to Congress. These speciation profiles were among the many input parameters used to conduct the RELMAP modeling which is heavily relied upon in the air deposition analyses for these TMDLs. Therefore, it would not be appropriate to use a different speciation profile for the "baseline period" calculations. (Changing the speciation profiles would require re-running the model which is beyond the available resources for these TMDLs.) For the "future year" scenario, an updated mercury speciation profile might possibly be used. However, an evaluation of mercury speciation information gathered in 1999 by EPA's Information Collection Request (ICR) for electric utilities indicates that speciation profiles differ greatly among different types of coal-fired power plants. (It is also important to note that none of the power plants located in the airsheds for these Georgia TMDLs actually had direct measurements of mercury stack emissions during 1999. Rather, for the ICR, the speciation profiles for the power plants in the TMDL airsheds were each estimated by comparison with facilities of similar design and operation.) An in-depth analysis of each individual power plant unit would be needed to compare the 1999 speciation profiles to the RELMAP estimates, and to determine if the RGM emissions were underestimated. The scope and time needed for this in-depth analysis is beyond the resources available for these first phase TMDLs.

Comment

The commenter indicates national power plant legislation is needed. The mercury TMDL analyses for Georgia illustrate the need for national multi pollutant legislation to reduce mercury emissions from power plants.

Response

Pursuant to the Clean Air Act, EPA is actively developing Maximum Achievable Control Technology (MACT) regulations for coal and oil fueled electric utilities, and expects to issue proposed regulations by December 15, 2003. (This is discussed in detail in other Responses to Commenter 5.)

Citizens or groups of citizens may contact their representatives in the U.S. Congress regarding information on development of national legislation. EPA continues to work with the Department of Energy (DOE) on analysis of the data from the 1999 Information Collection Request (ICR) for electric utilities, and on current projects to evaluate control technologies to reduce emissions of pollutants from power plants.

Note that on February 14, 2002, President Bush proposed the Clear Skies Initiative which would result in reductions in emissions of mercury, sulfur dioxide, and nitrogen oxides from U.S. power plants, using a market based approach. Should this initiative become law, nationwide mercury emission would be reduced significantly from current conditions. In future years, detailed evaluation and possibly atmospheric modeling will be needed to estimate the overall reductions in deposition of mercury to watersheds in the southeastern U.S. which will result from this proposal or other possible legislation, from ongoing actions under the Clean Air Act, and from voluntary actions.

Comment

The commenter indicates the 2010 analysis clearly shows that virtually every source category - except power plants - will be in compliance with emission standards developed under section 112 of the Clean Air Act.

Response

The analyses of atmospheric deposition for the Georgia TMDLs, are based on regulations which have been "Promulgated" as final, not simply "Proposed" for public review. Compliance by emissions sources with currently promulgated regulations is expected before the year 2010. The effects of these regulations on reduced loading in 2010 is estimated in Chapter 3, sections 3.3 and 3.4 of each Analysis of Atmospheric Deposition document. In addition, EPA is actively developing additional regulations under the Maximum Achievable Control Technology (MACT) process to limit emissions of mercury from coal-fired and oil-fired electric utility boilers. Since Proposed regulations for utilities are only scheduled to be made public by December 15, 2003, it is beyond the scope of the analyses for these Phase I TMDLs to estimate what level of control may be proposed for utility boilers, or to speculate on the likely timetable for proposed standards to become finally promulgated and fully implemented.

Comment

The commenter indicates control of criteria pollutant emissions without simultaneous control of mercury emissions may increase localized RGM deposition.

Response

There are many factors which potentially impact atmospheric mercury deposition. These factors include: the levels and chemical form of mercury emissions (e.g., elemental mercury, reactive gaseous mercury (RGM), or particulate forms) from local, regional and global sources; transport and chemical/physical transformation process that occur once the mercury enters the atmosphere; and meteorological influences. Complex mercury deposition models which consider these factors have been developed and are used to estimate the levels of atmospheric mercury deposition at numerous points across the United States. The RELMAP model used in the atmospheric deposition analyses for the TMDLs calculates atmospheric interactions of mercury with criteria pollutants (ozone, sulfur dioxide, and carbon particulate matter) and how these affect deposition. New and improved models are being developed which include state-of-the-science treatment of the impacts of criteria pollutants on the transport and deposition of mercury. EPA plans to evaluate the results of these new models and may use them in future phases of Georgia TMDLs. Also note that certain types of controls for reducing NOx and SO2 emissions may also reduce mercury emissions; see EPA's response to Commenter 5's remark on "... the need for multi-pollutant action on power plants ...".

Comment

The commenter indicates EPA's reliance on a "water quality standard" derived in an ad hoc manner without satisfying federal or state procedural requirements is legally indefensible.

Response

The State of Georgia has interpreted their narrative "free from" criteria to be 0.3mg/kg of methylmercury in fish tissue. The narrative criterion has previously undergone all appropriate procedural requirements.

Comment

The commenter indicates even if EPA's use of Georgia's "water quality standard" were legal, its calculation of the water quality standard is technically flawed and arbitrary and capricious. EPA's calculation of a water quality standard to achieve an acceptable mercury fish tissue level is based on erroneous and invalidated assumptions.

Response

All assumptions used are consistent with the State of Georgia interpretation of their narrative criteria, EPA's Human Health Methodology, and EPA's Methylmercury criterion guidance document. Both of the EPA documents have undergone extensive public review and comment as well as external peer review.

All assumptions with respect to mercury toxicology and reference dose are based on the findings of the National Academy of Sciences and concurred upon by EPA's Science Advisory Board.

Comment

The commenter indicates EPA's underlying basis of the TMDLs is overly simplistic, has not been validated for application to the South Georgia watersheds and river basins, and does not reflect current knowledge on the aquatic cycling of mercury.

Response

This representation of mercury fate establishes a spatially varying relationship between point and atmospheric loadings, total mercury in soil, total mercury in water and sediment, methyl mercury in water and sediment, and mercury in fish tissue. This analysis assumes that reductions in loadings will lead to proportional mercury loading reductions in all media over time. While this seems to be relatively simple it does represent our current knowledge of mercury cycling in the environment. EPA has made commitments to improve the predictability of the models for mercury cycling in wetlands and tributary systems.

Comment

The commenter indicates EPA's own data indicate that there is no proportional relationship between the mercury levels in sediments and the level of mercury in the water column. There also is very little evidence that mercury levels in the water determine the resultant fish tissue concentration.

Response

While these statements and accompanying material point out very real uncertainties in mercury fate analysis, they overstate the case and do not provide a workable alternative in relating mercury loadings to mercury levels in fish. The commenters analyze the data from the single Savannah River sampling survey, and find no spatial correlation between total mercury and fish mercury concentrations, between total mercury and methyl mercury concentrations, and between methyl mercury and fish mercury concentrations. The TMDL analysis, however, is not based on spatial correlations, but rather on an underlying mass balance along with a set of transport and transformation processes.

This representation of mercury fate establishes a spatially varying relationship between point and atmospheric loadings, total mercury in soil, total mercury in water and sediment, methyl mercury in water and sediment, and mercury in fish tissue. This analysis assumes that reductions in loadings will lead to proportional mercury loading reductions in all media over time. While the spatial representations and time trends predicted by the model are uncertain, the expected reduction of mercury concentrations in soil, water, sediment, and fish due to reduced loadings is sound. It should be obvious that present concentrations in fish have resulted from loadings averaged over an appropriate time (as affected by transport, transformation, and bioaccumulation processes). Further, if all loadings

could be completely eliminated, the mercury concentrations in all media and fish would eventually reach zero. We assume that methylation/demethylation rates and food web structure will be unaffected by future mercury load reductions. Therefore, predicted mercury concentrations in all media at a location (given sufficient time to re-equilibrate) will be related to load reductions in a roughly linear manner.

Thus we can agree with the statement that concentrations in fish would appear to be much more dependent on methylation rates and the structure of the food web than on total mercury concentrations in the water column, especially when comparing one location to another. We point out, however, that the methylation process operates on divalent mercury in the water and sediment, and that divalent mercury originates in simulated loadings to the watershed and water body. While we chose not to tune the model spatially in this first application, we could use the present framework along with spatially-variable parameters (i.e., methylation and demethylation rate constants in tributaries, water, and sediment) to better capture spatial trends in methyl mercury.

Comment

The commenter indicates EPA's usage of the proportional equation relating mercury levels in water to mercury levels in fish assumes not only a direct linkage between these two components, but also a "steady-state" condition between all of the components that transfer mercury: water, sediment, food chain organisms, and piscivorus fish.

Response

The linear relationship that EPA makes in determining the TMDL under a steady condition is to account for annual average conditions. EPA realizes that this relationship will change from year to year and season to season. This approach used the best technology we have available for developing a TMDL for mercury.

Comment

The commenter indicates EPA's use of a bioaccumulation factor to quantify the magnitude of bioaccumulation in a waterbody is not valid, and that deficiency further undermines the assumption of a strong linkage between mercury levels in water and levels in fish.

Response

It is not expected that the BAF would vary significantly throughout the Middle/South watersheds. With the collection of additional information and data in future phases of the TMDL, enough information might then exist to develop segment-specific BAFs for the Middle/South watersheds if indeed segment-specific BAFs are warranted.

Comment

The commenter indicates EPA's decision to assign a cumulative wasteload allocation equal to the presumed current contribution of mercury - as a percentage - is arbitrary.

Response

This method of developing the wasteload allocation clearly indicates that not all the burden for mercury removal is placed on the atmospheric sources, but, shows the point sources are doing their fair share.

Comment

The commenter indicates EPA incorrectly relied on test methods either not approved or validated for methylmercury.

Response

Method 1630 (August 1999), the analytical method used to measure methyl mercury as part of the sampling, was designed for the determination of methyl mercury in the range of 0.02-5 ng/l. Again, this general range is not the same as detection limits. Those are determined at each analytical laboratory and can extend to concentrations much lower than the general range.

Comment

The commenter indicates EPA rules do not authorize the Agency to propose allocation and permitting options as part of the TMDLs.

Response

The waterbody TMDL assigns a cumulative wasteload allocation (WLA) to # identified NPDES point sources. The TMDL also assigns individual WLAs to each of the NPDES point sources identified in the TMDL. EPA has the legal authority to assign allocations in a reasonable manner, so long as the sum of the allocations is equal to or less than the loading capacity of the receiving water (and allows for a margin of safety). In addition, with respect to nonpoint sources, EPA's regulations provide that load allocations "are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading." 40 C.F.R. § 130.2(g). The TMDL assigns individual wasteload allocations to all point sources for which the EPA and EPD have sufficient information in order to develop an equitable allocation scheme. The individual WLAs are expressed in two forms: numeric and narrative. For each point source, the permitting authority may choose the type of WLA upon which its water quality-based permit limits will be based. EPA has the legal authority to offer this choice because implementation of either type of WLA, in the aggregate, will result in attainment of the cumulative WLA. The reasons for EPA's conclusion are set forth below.

The WLA expressed in numeric form

The WLA expressed in numeric form, like the ensuing water quality-based effluent limit, would be derived from the water quality target for the TMDL (# ng/l), which in turn reflects Georgia's interpretation of its water quality standards.

(EPA frequently refers to such water quality-based effluent limitations as "criteria end-of-pipe limits.") The numeric WLA represents the loadings of mercury that EPA has determined can be discharged by point sources to the waterbody without impairing the water quality standards. By practice, EPA generally does not consider discharges at levels at or below criteria end-of-pipe to cause or contribute to an exceedance of water quality standards. EPA recognizes that mercury is a persistent, bioaccumlative pollutant and that mass loadings can sometimes be a cause for concern, irrespective of the concentrations at which they are discharged. However, EPA believes that, in this circumstance, the [name] River can assimilate mass loadings of mercury associated with criteria end-of-pipe limits without exceeding applicable water quality standards. This is because (1) the water quality target for mercury is specifically calculated to address the effects of bioaccumulation of mercury, i.e., it is stringent enough to achieve Georgia's water quality standards despite mercury's bioaccumulative impacts; and (2 EPA has reasonable assurance that reductions from other (in this case, air) sources will create sufficient loading capacity to allow mercury to be discharged in very small amounts from the identified NPDES point sources at levels at or below the cumulative wasteload allocation. Through implementation of the TMDL, EPA expects that, over time, concentrations of mercury in the waterbody should be at or below levels necessary to meet Georgia's water quality standards even with the ongoing addition of mass loadings of mercury associated with criteria end-of-pipe limits. If this proves not to be the case, and the mass loadings of mercury accumulate in fish tissue at levels causing an exceedance of water quality standards, the TMDL, including its WLAs, may need to be revised. In sum, EPA believes that WLAs set equivalent to the applicable water quality standards (interpreted to be 2.8 ng/l), when considered together with the loading reductions EPA anticipates from air sources, will lead to the attainment of the waterbody's water quality standards for mercury, as required by section 303(d).

EPA has received comments objecting to this wasteload allocation on the ground that compliance with criteria end-of-pipe limits based upon the TMDL would impose enormous additional costs on the point source dischargers for negligible environmental benefit. In response, EPA notes the following. First, EPA's information shows that many mercury dischargers can achieve significant mercury reductions through pollution prevention approaches – thus obviating the need for end-of-pipe treatment, which EPA recognizes can be extremely costly. See, e.g., Overview of Pollution Prevention Approaches at POTWs (EPA 1999). Second, facilities that expect to incur substantial additional costs are free to request permit limitations based upon the alternative wasteload allocation offered in this TMDL; under that approach (discussed below), dischargers would be required in their NPDES permits, as applicable, either to reduce their mercury loadings to the maximum extent feasible through cost-effective mercury minimization measures or to characterize the mercury loadings in their effluent and to implement appropriate cost-effective mercury minimization measures identified through mercury minimization planning under certain circumstances. Nothing in this TMDL assumes that point sources would need to incur the costs described by the commenter. Third, a TMDL presents an opportunity to allocate

loading reductions in an equitable and cost-effective way. Therefore, if EPA had reasonable assurance that all of the necessary loading reductions could be achieved through control of air sources (while allowing for a reasonable margin of safety), EPA could conceivably establish WLAs for the point sources that allow dischargers to maintain their existing effluent quality, i.e., assume no point source reductions at all. However, as noted throughout this record, EPA determined that it did not have such assurance. Therefore, EPA determined that reductions from point sources were necessary because wasteload allocations can encompass only the remaining available load (allowing for a margin of safety). Fourth, EPA disagrees that the environmental benefit of reducing mercury loadings, even in small amounts, would be negligible. As noted elsewhere in this record, mercury is a bioaccumulative, persistent pollutant that appears on EPA's list of priority toxic pollutants. Therefore, EPA believes that any removal of mercury from the environment is beneficial.

The WLA expressed in narrative form

EPA has also determined that the TMDL will lead to attainment of water quality standards if the permitting authority chooses WLAs expressed in a narrative form. While as a matter of policy EPA recommends numeric effluent limitations, neither EPA's regulations nor the CWA precludes EPA or states from expressing WLAs (or water quality-based effluent limitations) in non-numeric form with appropriate justification. The CWA defines "effluent limitation" broadly, and EPA's regulations reflect this as well. Each provides that an effluent limitation is "any restriction" imposed by the permitting authority on quantities, discharge rates and concentrations of a pollutant discharged into a water of the United States. CWA § 502(11) (emphasis supplied); 40 C.F.R. § 122.2 (emphasis supplied). Neither definition requires an effluent limitation to be expressed as a numeric limit. The D.C. Circuit observed, "Section 502(11) defines 'effluent limitation' as 'any restriction' on the amounts of pollutants, not just a numerical restriction." NRDC v. EPA, 673 F.2d 400, 403 (D.C. Cir.) (emphasis in original), cert. denied sub nom. Chemical Mfrs. Ass'n v. EPA, 459 U.S. 879 (1982). In short, the definition of "effluent limitation" is not limited to a single type of restriction, but rather contemplates a range of restrictions that may be used as appropriate. For example, EPA's regulations at 40 C.F.R. § 122.44(k) authorize effluent limitations in the form of best management practices, e.g., when it is infeasible to calculate numeric limitations or when the practices are reasonably necessary to carry out the purposes of the Act. See 40 C.F.R. § 122.44(k)(2) & (3).6

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6 While these WLAs are not, in themselves, enforceable water quality-based effluent limitations, EPA believes that an analogy to such limits for this purpose is appropriate because of their close relationship. See 40 C.F.R § 122.44(d)(1)(vii)(B) (requiring the permitting authority to ensure that water quality-based effluent limitations in NPDES permits are consistent with the assumptions and requirements of WLAs established in a TMDL).

In this TMDL, the narrative version of the WLA is expressed essentially as follows: the quantity of mercury loadings that would be present in each point source's effluent after the point source quantifies the mercury in its effluent and implements measures, if appropriate, to minimize the identified loadings. Under the narrative WLA, EPA expects the permitting authority to establish NDPES permit limitations (in the form of narrative requirements) and conditions that would require the discharger either to develop and implement mercury minimization measures (in the case of any point source that currently has water quality-based effluent limitations for mercury) or to undertake mercury characterization activities and, if appropriate, develop and implement mercury minimization measures (in the case of any point source identified that does not currently have water quality-based effluent limitations for mercury). In addition, the TMDL expects, in the case of the one NPDES point source discharger that currently has a water quality-based effluent limitation for mercury, that the permitting authority will impose a numeric effluent limitation for mercury following completion of the mercury minimization plan. EPA expects that limitations to reflect the achievable level of mercury in the discharger's effluent upon implementation of appropriate, cost-effective minimization measure. EPA further expects that it would be no less stringent than currently effective water quality-based effluent limitations. EPA believes that the permitting authority is in the best position to calculate the numeric limitations that reflect implementation of minimization measures.7

EPA believes that mercury reductions achieved through implementation of the narrative WLAs, in the aggregate, will result in loadings equal to or less than the cumulative WLA. EPA believes this reduction can be achieved through reasonable mercury minimization programs, where necessary.8 EPA bases this belief on its study of pollutant minimization programs and their success in reducing loadings of mercury to the environment. (See EPA, 1997, Mercury

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[7] EPA disagrees with comments that characterize Option 2 as authorizing dischargers to continue discharging at their current level. Rather, EPA expects that dischargers that receive effluent limitations based on Option 2 will reduce their mercury discharges to the maximum extent feasible, using appropriate, cost-effective pollution prevention measures. While it is conceivable that a few dischargers will be unable to identify any cost-effective measures to minimize their mercury discharges, EPA believes this is highly unlikely. See, e.g., Overview of Pollution Prevention Approaches at POTWs (EPA 1999).

[8] EPA notes that not all point sources identified in the TMDL may actually need to implement mercury minimization measures. Under Option 2, EPA expects that the permitting authority would simply require many of these point sources to quantify the amount of mercury present in the discharge (if any) using the new analytical method for mercury (Method 1631). If the monitoring data shows that mercury is present in the final effluent at levels above 2.8 ng/l, EPA would then expect the permit to require the point source to develop a mercury minimization plan and to implement cost-effective and appropriate minimization measures.

Report to Congress and EPA, 1999, Pollution Prevention at POTWs Reference List.) POTWs and industrial dischargers have implemented source controls, product substitution, process modification, and public education programs with great success. For example, POTWs can educate the public to prevent pollution by avoiding household products that contain high levels of mercury or substituting those products for ones that are mercury-free or more environmentally friendly. The most cost-effective approach for POTWs to substantially reduce mercury discharges appears to be pollution prevention and waste minimization programs that focus on high concentration, high volume discharges to the collection system, with considerable effort also directed at high concentration, low volume discharges such as medical and dental facilities. Using pollutant minimization/pollution prevention programs also will reduce mercury loadings from air sources. Mercury controlled at the POTW through end-of-pipe treatment is likely to reenter the environment through pathways such as air deposition and runoff associated with from land application practices (because mercury removed from effluent invariably is transferred to POTW sludges and is either incinerated or applied to land). EPA believes that the solution to controlling mercury releases to the environment is not to change the media release from water to air or land, but to either prevent mercury from entering the wastewater collection system at the source through product substitution, waste minimization or process modification, or by removing and recycling mercury at the source (i.e., source controls) using state-of-the-art technology. Where these approaches have been implemented, substantial reductions in mercury concentrations in POTW influents, sludges, and effluents have been achieved. For a discussion of this, see, for example, Overview of Pollution Prevention Approaches at POTWs (EPA 1999).

Some commenters have argued that there is no assimilative capacity available in the [name] River to authorize WLA option 2, which could result in discharges at levels above criteria end-of-pipe. EPA disagrees with this comment. [the following response if for waters where air WILL achieve enough reductions; need to change this language for the other waters] In this TMDL, EPA has reasonable assurance that air sources will reduce their loadings sufficiently to allow EPA to assign a cumulative wasteload allocation of 0.3 kg/year to all NPDES point sources. Option 2 presents an alternative expression of that cumulative wasteload allocation. As discussed above, EPA expects that mass loadings of mercury from point sources will be equal to or less than the allowable load following implementation of cost-effective mercury minimization measures, even though, in terms of concentration, some discharges might actually exceed criteria end-of-pipe levels.

EPA received comments questioning EPA's authority to impose permit conditions requiring development and implementation of minimization plans. In response to this comment, EPA notes first that this TMDL does not impose permit conditions or in any way require point sources to develop and implement minimization plans. Only an NPDES permit issued by EPA or an authorized state can impose such binding requirements. EPA recognizes, however, that effluent limitations in such

permits must be consistent with the assumptions of this TMDL. This TMDL assumes that the cumulative wasteload allocation assigned to point sources identified in this TMDL can be achieved either through criteria end-of-pipe limitations (reflecting wasteload allocation Option A) or through waste minimization (reflecting wasteload allocation Option B). Under this TMDL, the permitting authority may choose the type of wasteload allocation upon which to base a point source's permit. If a point source doubts the legal authority supporting Option B, it is free to urge the permitting authority to base its mercury effluent limitations on Option A. In any case, EPA believes that the waste minimization approach is authorized under the Clean Water Act. It does not contemplate the establishment or enforcement of water quality-based effluent limitations within the facility; instead, it is a tool that EPA expects dischargers would use to reduce their mercury loadings at the point of discharge to the [name] River.

EPA also received comments questioning EPA's authority to require monitoring for mercury except in connection with permit applications (40 C.F.R. § 122.21) or when the permitting authority finds it necessary to "assure compliance with permit limitations" (40 C.F.R. § 122.44(h)). EPA reiterates that this TMDL, in itself, does not impose monitoring requirements, and notes as well that the monitoring assumptions incorporated into this TMDL are associated only with Option B, which the point source is free to urge the permitting authority not to employ.9 In any case, EPA has the authority under CWA section 308(a) to include monitoring assumptions as part of Option B in this TMDL. Section 308(a) authorizes EPA, among other things, to require owners or operators of point sources to establish and maintain records, make reports, install, use and maintain monitoring equipment, sample effluent, and provide such other information as the Administrator may require in order develop effluent limitations or otherwise to carry out the objectives of the Act. Among other things, EPA expects that the permitting authority will use the information from the dischargers' mercury characterization efforts to determine whether mercury is present and reliably quantified at levels justifying imposition of water quality-based effluent limitations (e.g., narrative limitations requiring development and implementation of mercury minimization measures). Accordingly, the monitoring assumptions incorporated into this TMDL are fully within EPA's authority under Section 308(a).

Comment

The commenter indicates EPA is without authority to propose TMDLs for waterbodies that are not impaired.

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9 Under EPA's permitting regulations, an NPDES permit must require dischargers to monitor their effluent in order to assure compliance with permit limitations. See 40 C.F.R. § 122.44(i)(1). Accordingly, if the permitting authority were to select wasteload allocation Option A, monitoring requirements would apply under authority of EPA's permitting regulations, not this TMDL.

Response

EPA is establishing this TMDL under CWA section 303(d)(2) pursuant to a Consent Decree in the case Sierra Club v. EPA, 1:94-CV-2501-MHS (N.D. Ga.). That Decree contains a schedule for proposing and establishing TMDLs for waterbodies identified in the 2000 Section 303(d) List that are located in specified river basins. Georgia has recently proposed its 2002 Section 303(d) List; that proposal removes several segments of water bodies which had previously been listed as impaired due to residual mercury in fish tissue. The proposal is based on more recent data and information indicating those water segments are not in fact impaired. However, the State's 2002 Section 303(d) List has not been finalized by the state or submitted to EPA for review and approval or disapproval. Therefore, the Consent Decree requirement that TMDLs be established for these waters remains. If subsequent to establishing these TMDLs, EPA approves a State Section 303(d) List which removes some or all of the waters based on information that the waters are no longer impaired, EPA will withdraw the TMDL issued as to those waters.

Comment

The commenter indicates EPA is illegally creating a new designated use and water quality criterion.

Response

The State of Georgia has interpreted their narrative "free from" criteria to be 0.3mg/kg of methylmercury in fish tissue. The narrative criterion has previously undergone all appropriate procedural requirements. No new designated use or water quality criterion is proposed by this action.

Comment

The commenter indicates EPA is illegally creating unique water quality standards for each "impaired" segment.

Response

The water quality criterion/standard remains the same in all cases i.e., the State narrative and subsequent interpretation of 0.3mg/kg of methylmercury in fish tissue. Since attaining this criterion is dependent of site-specific factors, the water quality target for each TMDL is different.

Comment

The commenter indicates EPA's mercury translator is arbitrary and capricious.

Response

The commenter is correct that EPA approved a TMDL developed by the State of Mississippi based on an aquatic life water quality criterion of 12 ng/l. (Note: EPA has not approved a TMDL from the State of Alabama for mercury.) EPA has also approved a TMDL for mercury established by the State of North Carolina that

was based on the State's 12 ng/l aquatic life criterion. In each case, the TMDLs were established by states, not by EPA.

In approving the TMDLs, EPA determined that the states' actions were reasonable. This does not mean that the TMDLs represent the only way the two states could have addressed the issue; nor does EPA's approval indicate what EPA would have done had it been responsible for developing the TMDLs. Having said that, however, EPA believes its decisions for the

Mississippi and North Carolina TMDLs were reasonable and do not conflict with its establishment of a mercury TMDL for the protection of human health for these waterbodies.

North Carolina and Mississippi each have a duly-adopted water quality criterion for mercury for protection of human health. As such it will remain an applicable water quality criterion until the State revises it (and EPA approves the revision) or until EPA exercises its authority under CWA 303(c)(4)(B) to promulgate a replacement federal standard. However, in establishing their TMDLs, these States properly used their water quality criterion of 12 ng/l for the protection of aquatic life in order to protect the States' most sensitive designated use. EPA recognizes that Mississippi's and North Carolina's current numeric human health criterion for mercury is considerably less stringent than EPA's recently published recommended section 304(a) water quality criterion for methylmercury. See 66 Fed. Reg. 1344 (Jan. 8, 2001). As noted in the *Federal Register* notice announcing the availability of the new criterion recommendations, EPA expects the States and authorized Tribes to use the section 304(a) criterion as guidance in adopting new or revised water quality standards. EPA expects States to adopt a new or revised water quality criterion for methyl mercury by early 2006 at levels necessary to protect human health. It should also be noted that while Mississippi and North Carolina used their aquatic life criterion as the basis for their TMDLs, both States added a large margin of safety to the TMDL to account for the lack of certainty regarding the protectiveness of their water quality criterion for impaired designated use in question (e.g., uses that provide for the protection of human health when consuming fish). Both States will be revising their human health criterion for mercury in the near future to ensure water quality criteria protective of their designated uses.

If a state has an applicable human health criterion that is protective of the designated use in question, EPA does not need to look beyond it to determine an appropriate water quality criteria protective of the designated use. When a State lacks a numeric water quality criterion for the protection of a designated use that is considered impaired, as in the case of Georgia, an interpretation of the State's standard must be made and a value sufficient to protect the designated use at issue must be identified. See 40 C.F.R. § 131.3(h) (defining water quality standards); 40 C.F.R. §131.3(b) (defining criteria to include narrative statements).

Comment

The commenter indicates NPDES permit holders which intake cooling water cannot be subjected to regulation based upon pollutants in intake water.

Response

The TMDL clearly states that NPDES facilities would be given credit for any mercury contained in their source water.

Comment

The commenter indicates temporal variations in mercury concentrations - differences in water column concentrations of total and methyl mercury between its 2000 and 2001 sampling events in the same river basins raise serious doubts as to the validity of using one year of sampling data to establish mercury TMDLs. It also brings into question the extent to which our scientific knowledge and ability to model mercury fate and transport is adequate to establish meaningful TMDLs in these watersheds. These analytical results lead to water quality targets that are substantially different, simply because the data were collected under different conditions in different years.

Response

When the water quality target calculations are compared among the various watersheds there exist a temporal variation that ranges from 1.6 to 6.8 ng/l total mercury. When more data is collected for each of these watersheds, the overall range maybe decreased or a better understanding of mercury cycling in the given watersheds will be better defined. As such, EPA is using a Phased TMDL development approach to allow for the collection of additional data in the basin to better characterize mercury.

Comment

The commenter indicates EPA has dismissed a convention used in the Savannah River TMDL earlier in the process that utilized a "standardized" fish size, with the result that the new TMDLs are even more variable from river basin to river basin due to randomness in the sizes of fish collected (larger, older fish tend to have greater body burdens of mercury).

Response

The convention of using a "standardized" fish size in the Savannah River example was used in order to reflect those sizes of fish for which the State had issued a fish consumption advisory and to target an endpoint which would result in the removal of the fish advisory. Since the interpretation of the State water quality standard is now 0.3mg/kg methylmercury in fish tissue over the range of fish consumed or presumed to be consumed, a different approach to the sampling protocol was used to reflect this change.

Comment

The commenter indicates EPA has arbitrarily made waste load allocations in some river basins based on the assumption that point sources contribute 1% of the total mercury load.

Response

This was not an arbitrary decision in determining the percentage of the total mercury load that comes from point sources. EPA has measured mercury concentrations in various waste streams throughout Georgia. While the concentration in these waste streams varies, the overall percentage of load is substantially less than 1%. Similar studies have been conducted by AMSA and support the same conclusions.

Comment

The commenter indicates EPA gives an aggregate wasteload allocation to all point source dischargers in certain river basins; however, it is unclear what regulatory actions might be taken if the aggregate wasteload allocation were to be exceeded or how it would be determined if the aggregate waste load allocation has been exceeded.

Response

For certain basins in the Middle Georgia basins a cumulative wasteload was given to the NPDES permitted facilities because analysis of the data indicate the waterbodies are not impaired. The State's permitting group for setting wasteload allocations in the future could use the cumulative wasteload.

Comment

The commenter notes EPA still does not make use of the Georgia Department of Natural Resources creel census data from the particular rivers in question, continuing instead to rely on national data for weighting trophic level 3 and 4 fish to calculate weighted averages.

Response

While creel data are useful in natural resources management and in identifying general catch practices, these types of data cannot be used to extrapolate consumption rates and distributions without follow up questions to this effect during the survey administration.

Comment

The commenter indicates EPA continues to establish TMDLs in individual river basins based on one or two water samples and a limited number of fish composites resulting in widely varying water quality targets for river systems within the same physiographic regions when they might pool the data and produce more consistent regional results. The concern is that dischargers in the same areas may be subjected to very different standards or permit limits based on very limited data collections, simply because EPA could not spend the time or money to collect adequate data.

Response

EPA has expended a large amount of resources to collect the data necessary to develop a defensible TMDL. While in some instances there is limited data, this data is important to represent how mercury is attenuated and transformed in different watersheds. The water quality target is controlled by the fraction of methylmercury in the watershed, which is depended upon the potential for methylation to occur. Processes mediated by wetlands typically control this. The commenter is reminded that this is a phased TMDL and more data will be collected to better support TMDL decisions.

Comment

The commenter indicates EPA has made use of the "implicit" margin of safety, allowing it to set TMDLs arbitrarily, without regard for the degree to which they are overly protective and potentially punitive to basin dischargers without justification.

Response

The margin of safety was used in the development of the TMDL number. Because the point source dischargers effluent concentration is controlled by the water quality target calculated for the given basin, the MOS has no barring on the basin dischargers wasteload allocation.

Comment

The commenter indicates that current understanding to the fate and transport of mercury in the environment in these waterbodies is inadequate to develop a reliable fate and transport model for the purpose of calculating water quality targets and loads.

Response

The water quality model was used to determine the TMDL and the amount of reduction needed to meet the TMDL. The fate and transport model was not used to determine the water quality targets; these were all calculated from site-specific data.

Comment

The commenter notes the use of incorrect relative source contribution (RSC): The RSC for marine fish is given as 0.00027 in the TMDL document (which appears to be the correct value). Apparently, an incorrect RSC value of 0.0001 was used in water quality target calculations (in AR spreadsheet and in the TMDL document). This results in an incorrect WQT (and therefore load calculations, % load reductions etc.) for all South Georgia TMDLs.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL.

Comment

The commenter indicates despite EPA's claim that it has selected only those NPDES sources that EPA believes have the potential to discharge significant amounts of mercury in their effluent, the selection seems to be arbitrary and capricious. Until the effluent levels are analyzed for all dischargers, there is no way to confirm EPA's claim. With existing data, it may be impossible to calculate the actual contributions of point vs. non-point sources because only a few NPDES dischargers were sampled as part f this TMDL.

Response

EPA in conjunction with the NPDES permitting group at the State of Georgia determined which facilities would be require to monitor and report for mercury. These facilities were selected because of reasonable potential to discharge mercury above natural background conditions.

Comment

The commenter indicates EPA has made use of an arbitrary margin of safety in some river basins that affects the wasteload allocation (the total available for point sources to discharge). For example, in the Jackson Lake and Ocmulgee River TMDL, EPA uses an explicit 10% margin of safety. No justification is given as to why EPA chose to include an explicit margin of safety here and not in other watersheds. In fact, the use of any margin of safety is counterintuitive because the TMDL shows the River not to be impaired. The statement on page 13 of this TMDL "Because Jackson Lake and the Ocmulgee River are currently not impaired due to the accumulation of mercury in fish tissue, and additional margin of safety will be assigned to the background load allocation (LA) using an explicit 10%" to be illogical, unfounded, and unnecessary.

Response

EPA chose to apply an explicit margin of safety in the watersheds that were determined not to be impaired because no effort was made model the fate and transport of mercury within the waterbody. Because mercury is a persistent bioaccumulative it was important to provided a reasonable margin of safety to help protect the waterbody in future uses.

Comment

The commenter indicates in developing the water quality targets for the draft TMDLs, EPA does not the State's interpretation of its narrative standard, even though the Agency recognized that interpretation (0.3 mg/kg in fish tissue) as the test for determining impairment. Instead, the Agency developed its own water quality target for each TMDL, using its human health criteria methodology. The commenter indicates that they have concerns as to use of that narrative interpretation, they do not understand why, if EPA believes that the State's interpretation is the test for impairment, it does not use that test to determine the reductions that must be accomplished in order for the water to attain standards and not be impaired. To be consistent, the same test must be used for both purposes.

Response

The water quality criterion/standard remains the same in all cases i.e., the State narrative and subsequent interpretation of 0.3mg/kg of methylmercury in fish tissue. Since attaining this criterion is dependent of site-specific factors, the water quality target for each TMDL is different. Therefore, while each TMDL has a different water quality target, they are all intended to meet the 0.3mg/kg in fish tissue and a different "test" was not used for each of the analyses.

Comment

The commenter indicates that they have concerns about how EPA developed its water quality targets. We continue to be concerned that EPA is using the bioaccumulation factor (BAF) concept that was included in the Agency's human health criteria methodology. The commenter also has concerns about why EPA did not examine site-specific information in developing the fish consumption rates that are used in its target calculation. Instead, EPA has used the fish consumption rate that was included in its changes to the human health criteria methodology - 17.5 g/day for the general population. This component of the proposed methodology was subjected to strong criticism from commenters. In its comments, the Coalition pointed out, for example, that EPA's rates were based on a study in which fishermen were asked how many fish they ate in the last three days. If a fisherman said that he had eaten one fish in the last three days, EPA would assume that he eats a fish every three days throughout the entire year, or about 120 fish per year. If the fisherman said that he had not eaten any fish in the last three days, he was excluded from the database. The result, of course, was a set of highly skewed calculated fish consumption rates, which do not adequately represent the amount of fish that people actually consume over a longer period. This issue, like the BAF issue, was sent to a peer review panel, which found fault with EPA's method. Specifically, the panel concluded that the study that EPA relied on was not suitable to use in assessing long-term exposure.

Response

With respect to the use of BAFs, the commenter is correct that this concept was included in EPA's Human Health Methodology. While the commenter may have concern with use of BAFs, the entire methodology was subject to extensive public review and comment as well as extensive peer review prior to being published as final EPA guidance and as such, is scientifically defensible. On the point of fish consumption rates, EPA did examine creel studies conducted in the areas of concern. While creel data are useful in natural resources management and in identifying general catch practices, these type of data cannot be used to extrapolate consumption rates and distributions without follow up questions to this effect during the survey administration. Since there are no local fish consumption studies, no studies in similar areas, and no separate well-defined population of high-end consumers, EPA believes that using the national default, consistent with the State methodology, is appropriate. Finally, on the points raised concerning EPA's default values and the associated peer review, the commenter has also failed to point out that, in addition to criticism of the fish

consumption rate, EPA received much support for the rates recommended. Specifically, there was substantial support for the new default rates as more accurately representing current levels of fish consumption among the general population than the old assumption of 6.5 grams/day. At the initial 1992 national workshop that EPA conducted to begin identifying areas for revision, one of the major components identified for revision was the fish intake default rate. At that time, many participants considered the 6.5 g/day value to be inadequate and advocated the use of much more recent data. Dietary information suggests that consumption of fish has increased since that time because of nutritional, cultural, and other preferential choices, and EPA has endeavored to identify more recent survey data. Since that time and throughout the revision process, the Agency has received consistently strong input from many of our stakeholders (including States and Tribes) to this effect, urging an update.

The Methodology's external peer reviewers questioned the use of short-term data for long-term fish consumption estimates. Specifically, the peer reviewers stated that short-term data do not "capture 'chronic' usual intakes" and are "not appropriate to use when estimating long term exposures." The peer reviewers instead recommended use of the Tuna Research Institute (TRI) data [cited in both the EPA/ORD *Exposure Factors Handbook*, and in the *Mercury Study Report to Congress* (MSRC) using food frequency data from the National Health and Nutrition Examination Survey (NHANES III)]. The TRI data the peer reviewers refer to is actually the National Purchase Diary (NPD) study conducted more than 28 years ago to evaluate overall dietary choices. The NPD is the basis of the 6.5 g/day default value that EPA has historically used for freshwater/estuarine fish consumption and is the consumption rate that the Agency has been so strongly urged to change.

The peer reviewers recommendation of the NPD data somewhat contradicts another statement that "estimates are poor when the data are derived from older national surveys conducted for other purposes, but then adjusted to derive . . . AWQC." The MSRC acknowledges that it is "rarely possible to measure a large number of days of dietary intake for individual subjects; consequently, a sample of one or several days is used to represent the true intake (Willett, as cited in USEPA 1997)." The report emphasizes that these samples are typically 24-hour recalls, 3-day recalls or records, or 7-day recalls or records. The MSRC indicates that data from such studies provide reasonable (unbiased) estimates of mean intake, but that standard deviations can be greatly overestimated. The MSRC indicates the potential for underestimating the *extent* of fish consumption due to the 3-consecutive-day limitation of the assessment but states that the dietary recall/record assessment provides "more precise estimates of the quantities of fish consumed that [sic] would be obtained with a food frequency record." We are not aware of any subsequent major survey conducted during a 30-day period as was done by the NPD.

Several studies indicate that the quantities and types of fish consumed have changed over the past 28 years. Further, comparisons between the NPD data and

newer studies are not possible. EPA specifically undertook an effort to acquire the NPD data to make such a comparison and found that some of the information is no longer available, including the survey sample weights. Without this information, comparisons are not possible.

EPA believes that the 1994-96 CSFII is the best source of data on a nationwide basis for estimating fish consumption by the U.S. population for several reasons. First, the survey design is structured to obtain a large, statistically representative sample of the U.S. population. Second, the 1994-96 CSFII provides 2 days of non-consecutive 24 hour dietary recalls. (The absence of multiple-day food intake data has been a prime reason for EPA being unable to use NHANES food consumption data.) Third, the 1994-96 CSFII provides recent estimates of food consumption. (While the NPD survey is an excellent survey, it was conducted 28 years ago and EPA believes that fish consumption has changed during that period.) Further, EPA believes that the dietary data collection method utilized by USDA for the CSFII 1994-96 is a superior data collection method developing out of continued research and evaluation by USDA. This entails using two interviewer-administered 24-hour recalls, using a multiple-pass approach designed to minimize under reporting of intake, collected 3 to 10 days apart.

The commenter is also incorrect about the exclusion of respondents who did not report fish consumption during the sampling period. All of the default values include both CSFII respondents who reported eating fish during the sampling period and respondents who reported zero consumption. Further, the commenter has incorrectly assumed that if a CSFII survey respondent reported consuming fish in one of the three reporting days that were part of the CSFII 1989-91 surveys, then EPA would have assumed that the respondent eats fish every three days or "120 fish per year." EPA has never made any such assumption. EPA believes that accounting for the respondents who ate fish during the survey period and those who did not is a reasonable method of estimating average consumption (as stated in the MSRC, see above). An assumption of 17.5 grams/day equates to 2.3 eight-ounce fish meals per month or approximately 28 meals per year, not the 120 suggested by the commenter.

Comment

The commenter indicates that since a detailed review of the technical validity of the site-specific data has not been conducted, comments pertaining to the validity of the specific bioaccumulation factors and methylation translators have not been provided.

Response

The data utilized in the calculation of percent methylmercury, bioaccumulation factors, and water/sediment chemistry is part of the administrative record for the TMDL and was available for review.

Comment

The commenter indicates the human health criteria methodology, which was issued for public comment in August 14, 1998, met strong criticism from commenters. In particular, it was pointed out by commenters, including the Coalition, that the BAF methodology has serious flaws. Subsequently, EPA convened a peer review panel of independent experts, who also voiced substantial concerns about the BAF methodology. The panel recommended that EPA revise the methodology and then send it back to the panel for further review. EPA has issued the final Human Health Methodology (65 FR 66444-66483 (November 3, 2000) but did not make most of the substantial revisions called for by commenters and the peer review panel. In addition, EPA did not submit the final Methodology to the peer reviewers for review and comment. Human Health Methodology should not be used, including in developing targets for TMDLs, until further scientific review is completed and appropriate revisions are made.

Response

The commenter has inaccurately described the final Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000). EPA did, in fact, make substantial revisions to the August 1998 draft Methodology, based on both external peer review and public comments. The commenter suggested that EPA *refused* to follow the peer review recommendations, including their suggestion for a re-review (specifically, of the bioaccumulation portion). As stated in the Agency's Science Policy Council Peer Review Handbook (U.S. EPA, 2000), peer reviews can occur during the early stages of the project or methods selection, or as part of the culmination of the work product. EPA's external peer reviews are conducted to provide critical reviews of the assumptions, calculations, extrapolation, alternate interpretations, methodology, etc. pertaining to the specific major scientific and/or technical work product and of the supporting documentation. Peer reviews are not necessarily a consensus process. EPA has comprehensively followed its peer review procedures and, as indicated above, made many significant changes to the 1998 draft Methodology.

The commenter has also failed to point out that, in addition to criticism of the fish consumption rate, EPA received much support for the rates recommended. Specifically, there was substantial support for the new default rates as more accurately representing current levels of fish consumption among the general population than the old assumption of 6.5 grams/day. At the initial 1992 national workshop that EPA conducted to begin identifying areas for revision, one of the major components identified for revision was the fish intake default rate. At that time, many participants considered the 6.5 g/day value to be inadequate and advocated the use of much more recent data. Dietary information suggests that consumption of fish has increased since that time because of nutritional, cultural, and other preferential choices, and EPA has endeavored to identify more recent survey data. Since that time and throughout the revision process, the Agency has received consistently strong input from many of our stakeholders (including States and Tribes) to this effect, urging an update.

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The peer reviewers recommendation of the NPD data somewhat contradicts another statement that "estimates are poor when the data are derived from older national surveys conducted for other purposes, but then adjusted to derive . . . AWQC." The MSRC acknowledges that it is "rarely possible to measure a large number of days of dietary intake for individual subjects; consequently, a sample of one or several days is used to represent the true intake (Willett, as cited in USEPA 1997)." The report emphasizes that these samples are typically 24-hour recalls, 3-day recalls or records, or 7-day recalls or records. The MSRC indicates that data from such studies provide reasonable (unbiased) estimates of mean intake, but that standard deviations can be greatly overestimated. The MSRC indicates the potential for underestimating the *extent* of fish consumption due to the 3-consecutive-day limitation of the assessment but states that the dietary recall/record assessment provides "more precise estimates of the quantities of fish consumed that [sic] would be obtained with a food frequency record." We are not aware of any subsequent major survey conducted during a 30-day period as was done by the NPD.

Several studies indicate that the quantities and types of fish consumed have changed over the past 28 years. Further, comparisons between the NPD data and newer studies are not possible. EPA specifically undertook an effort to acquire the NPD data to make such a comparison and found that some of the information is no longer available, including the survey sample weights. Without this information, comparisons are not possible.

EPA believes that the 1994-96 CSFII is the best source of data on a nationwide basis for estimating fish consumption by the U.S. population for several reasons. First, the survey design is structured to obtain a large, statistically representative sample of the U.S. population. Second, the 1994-96 CSFII provides 2 days of non-consecutive 24 hour dietary recalls. (The absence of multiple-day food intake data has been a prime reason for EPA being unable to use NHANES food consumption data.) Third, the 1994-96 CSFII provides recent estimates of food consumption. (While the NPD survey is an excellent survey, it was conducted 28 years ago and EPA believes that fish consumption has changed during that

period.) Further, EPA believes that the dietary data collection method utilized by USDA for the CSFII 1994-96 is a superior data collection method developing out of continued research and evaluation by USDA. This entails using two interviewer-administered 24-hour recalls, using a multiple-pass approach designed to minimize under reporting of intake, collected 3 to 10 days apart.

The commenter incorrectly states that EPA did not examine site-specific information in developing the national default fish consumption rate. In fact, EPA did not rely exclusively on the CSFII data. Rather, the data were analyzed with those from other studies (especially for recreational fisher and subsistence fisher estimates) to evaluate and corroborate our decision. These included the MSRC, itself representing a substantial compilation of fish consumption studies, and numerous sport and subsistence fisher studies that were published along with the 1998 draft Methodology revisions. [Note: The MSRC inevitably relies on the CSFII data from USDA, along with the NHANES III estimates of fish consumption patterns (from the early 1990s) for making estimates on fish consumption in the general population.]

The commenter is also incorrect about the exclusion of respondents who did not report fish consumption during the sampling period. All of the default values include both CSFII respondents who reported eating fish during the sampling period and respondents who reported zero consumption. Further, the commenter has incorrectly assumed that if a CSFII survey respondent reported consuming fish in one of the three reporting days that were part of the CSFII 1989-91 surveys, then EPA would have assumed that the respondent eats fish every three days or "120 fish per year." EPA has never made any such assumption. EPA believes that accounting for the respondents who ate fish during the survey period and those who did not is a reasonable method of estimating average consumption (as stated in the MSRC, see above). An assumption of 17.5 grams/day equates to 2.3 eight-ounce fish meals per month or approximately 28 meals per year, not the 120 suggested by the commenter.

As previously indicated, EPA's fish intake rate includes the assumption that all of the consumed fish is taken from one particular waterbody. This is to ensure that any population can safely eat fish from waters designated for fishing, including those who may rely on a single source for their fish. The purpose of the assumptions is to ensure that if criteria are met in a waterbody designated with the uses specified in Section 101(a) of the CWA, fish consumers can safely eat fish from that waterbody. In addition to the assumption that 17.5 g of fish are consumed per day, EPA also assumes that fish and shellfish are taken from water with pollutants present at the criteria level. Again, in order to ensure that people can safely eat fish from waters designated with Section 101(a) uses, it is necessary to assume that all of the consumed fish is taken from waterbodies at the criteria level (i.e., contaminated to the maximum safe level).

EPA recognizes that fishing patterns (i.e., extent and location of fishing) and the degree to which fish and shellfish bioaccumulate contaminants from waters across

the United States may differ from the exposure assumptions used to calculate national 304(a) water quality criteria. However, the degree and frequency of such variation are not clearly known, and these potential differences do not relieve EPA from its CWA obligations to develop national water quality criteria (which States and authorized Tribes may modify) that are protective for the general population. Furthermore, we note that not all of these differences would lead to less restrictive (higher) AWQC. For example, some subpopulations may consume fish at a higher rate than the 17.5 g/day assumed in the national 304(a) criteria, and bioaccumulation might occur to a higher degree than the central tendency assumptions used in calculating the national default BAF. EPA does not believe that the data exist to enable the Agency to account reliably for the myriad of spatial and temporal differences in fishing patterns and bioaccumulation and subsequent differences in exposure to fish contaminants at the national level. In addition, EPA has not received information from any stakeholder that would allow the Agency to make such fine distinctions and to suggest a proportion of fish consumed that is actually contaminated or the levels at which those fish might be contaminated. Given the Agency's goal to ensure that populations who rely on a particular waterbody as the predominant source of their fish and shellfish are adequately protected, thus protecting the designated use of that waterbody, we believe that these assumptions are appropriate for the development of 304(a) criteria. Where States and Tribes have concerns regarding the level of protection afforded by CWA Section 304(a) criteria, EPA encourages States and authorized Tribes to make appropriate adjustments to reflect local conditions affecting fish consumption and bioaccumulation. Guidance for making such modifications is provided in the 2000 Human Health Methodology.

EPA believes that the CSFII data are adequately representative of fish intake rates among the general population for purposes of national criteria. The national default intake rate of 17.5 g/day will protect a majority of the population of consumers of fresh/estuarine finfish and shellfish, especially population groups who rely on a particular waterbody for most or their entire fresh/estuarine intake. It is EPA's goal to utilize an intake rate that represents more of the population than would a central tendency value. Thus, the Agency intends to derive national 304(a) criteria using this assumption (i.e., a 90^{th} percentile value) based on the most recent national data available.

Comment

The commenter indicates for a number of the middle and south Georgia watersheds, the site-specific fish tissue data collected by EPA yielded a weighted fish tissue concentration less than the new narrative interpretation of 0.3 mg/kg; these waters are meeting the criterion; however, EPA states that it is still proposing TMDLs for these waters, because it is required by the Consent Decree in the TMDL case brought by Georgia environmental groups. For these waters, no load reductions would be needed, because the fish tissue levels are already below the criterion. If load reductions are not needed, then it naturally follows that TMDLs are not needed. Therefore, we believe that in no event should TMDLs be completed for these waters. EPA has stated that if the

State takes action to remove those waters from its 303(d) list, these TMDLs would not be finalized. We submit that these TMDLs should not be finalized, even if the State has not taken final action to delist, since EPA has already decided that load reductions are not needed. There is no point in doing a TMDL that does not accomplish anything.

Response

EPA agrees when the weighed fish tissue concentrations are calculated for several of the proposed TMDLs, the calculated tissue concentrations falls below Georgia's threshold of 0.3 mg/kg. Because there was no time to adequately de-list the segments, and EPA is responsible for proposing TMDLs based upon a consent decree, EPA proposed these TMDLs to meet the court ordered obligations. If in fact Georgia proposes to de-list these segments based upon this new methodology these TMDLs will be withdrawn.

Comment

The commenter indicates when mercury limits are not currently in a discharger's permit, EPA provides two options for addressing the need for mercury limits for point source dischargers. The State will either issue a permit limit equal to the target applied at end-of-pipe limits, with no mixing zone allowed, are completely improper, on legal, technical and policy grounds. This proposed option unfairly and illegally places the burden of water quality standard compliance on point source dischargers, which contribute an extraordinarily small fraction of the pollutant causing the impairment.

Response

EPA agrees with the commenter's statement that a wasteload allocation equivalent to criteria end-of-pipe would preclude the permitting authority from employing a mixing zone to authorize a less stringent permit limit. EPA disagrees with the commenter, however, that EPA lacks the statutory authority to assign criteria end-of-pipe wasteload allocations to point sources as part of the Savannah River TMDL. First, EPA disagrees with the commenter's interpretation of CWA section 301(b)(1)(C) and the accompanying legislative history. The commenter argues that EPA's authorization to include NPDES limitations "necessary to meet water quality standards," CWA section 301(b)(1)(C), is confined to situations when such limitations are "'necessary' to achieve a discernible reduction in the impairment." EPA disagrees that the statute must be read so narrowly. Indeed, EPA's long-standing regulations provide that permits must contain water quality-based effluent limits whenever the permitting authority determines that pollutants are being discharged at a level that will "cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i) (emphasis added); see 54 Fed. Reg. 23868 (June 2, 1989). The resulting

limitations, in turn, ensure that the pollutant discharges will not fulfill their potential to cause or contribute to an exceedance of standards.[10]

The commenter also asserts that the TMDL's criteria end-of-pipe wasteload allocations are inconsistent with EPA's regulations at 40 C.F.R. § 122.44(d)(1) and the CWA's broad grant of authority to States to implement water quality standards. The commenter correctly notes that EPA's regulations authorize the permitting authority to consider "where appropriate, the dilution of the effluent in the receiving water" when deciding whether or not a water quality-based effluent limitation is necessary (i.e., in making "reasonable potential" determinations). 40 C.F.R. § 122.44(d)(1)(ii). However, contrary to the commenter's suggestion, this regulation does not require the consideration of mixing zones in all circumstances, but rather only when appropriate. Similarly, when EPA promulgates water quality standards for a state, e.g., 40 C.F.R. § 131.36(c)(2)(i), EPA directs that the water quality criteria apply "at the appropriate location" within or outside a mixing zone, while noting also that "otherwise the criteria apply throughout the waterbody including at the end of the discharge pipe, canal or other discharge point." Both of these regulations allow for the use of mixing zones when appropriate. When levels of the pollutant for which a mixing zone is sought already exceed the applicable criterion in the receiving water, there may be no available dilution. Therefore, even though state water quality standards might generally authorize mixing zones, it would not be appropriate to exercise such authority in that situation. (Indeed, authorization to establish mixing zones does not imply a requirement to establish mixing zones, as the commenter seems to suggest.) Contrary to the commenter's assertions, this TMDL does not promulgate a rule of general applicability that would prohibit mixing zones. Rather, it applies EPA's regulation and reflects EPA's judgment that there may be no available dilution even after implementation of the TMDL, with the result that a mixing zone would not be appropriate here.[11]

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[10] The commenter's statutory and legislative history arguments, at bottom, challenge EPA's regulations in Part 122 and are therefore outside the scope of this TMDL.

[11] It is possible that mercury loadings from the point sources identified in the TMDL ultimately might be reduced to levels below the cumulative wasteload allocation assigned to all of the sources in this TMDL. In that event, it is conceivable that loading capacity could be available to authorize limited use of mixing zones in lieu of Option A's expectation that all point source dischargers would be subject to criteria end-of-pipe limitations. At this point, however, EPA assigns any such available load to this TMDL's margin of safety as a buffer against uncertainties associated with current actual point source loadings and anticipated achievable reductions. EPA would be willing to reconsider the Option A wasteload allocation in future revisions of the TMDL, should EPA determine that additional loading capacity could be made available to the point sources. EPA notes, however, that as a matter of policy, EPA believes that mixing zones for mercury should be authorized (even if additional loading capacity exists) only in

Similarly inapposite is the commenter's reference to the Administrator's decision In the Matter of Star-Kist Caribe, Inc., NPDES Appeal No. 88-5 (1990). The passage indicated by this comment is quoted out of context. In context, it becomes clear that the Administrator was clarifying that only the States, and not EPA, can establish the authority to use flexible provisions such as mixing zones to implement state-adopted water quality standards. The decision clearly holds that if a State has adopted such authority, then EPA can employ mixing zones in permits that EPA issues. However, EPA cannot implement flexible provisions where the State, in its exclusive authority, has not established the authority to do so. The decision does not hold that when a State has authorized such provisions and implements them in its own permits, EPA has no authority to object to or comment adversely on whether such implementation meets the underlying permitting requirements set forth in EPA regulations.

Finally, EPA notes that a mixing zone, by definition, authorizes discharges above the applicable water quality criteria. Concentration levels close to water quality criteria correspond to the maximum loadings of the pollutant that can be introduced into receiving waters without impairing designated uses. For some pollutants, those levels can be exceeded in a limited area (a mixing zone) because the system can assimilate the additional loadings. Thus, the appropriate use of mixing zones allows for greater discharges of pollutants that have a short-term and localized impact on waterbodies, provided those discharges do not adversely affect the waterbody away from the area of immediate discharge (the mixing zone). Mercury behaves differently. The effects of mercury are not limited to the short term and can occur at considerable distance from the point of discharge. Therefore, the use of mixing zones to increase the amount of allowable discharge of mercury may not be environmentally prudent. A water quality-based effluent limitation based on criteria end-of-pipe assures that mercury will be discharged at safe levels.

The commenter also raises technical objections to the omission of a mixing zone. The commenter states that it is technically inconsistent for EPA to eliminate mixing zones predicated on 100 % of the mercury remaining in the water column while admitting in the TMDL that reduction and demethylation occur when mercury is released, and bioaccumulation occurs over a long period of time. EPA does not completely understand this commenter's issue as it relates to a mixing zone. However, if the commenter is saying that mercury will be immediately lost to the receiving waterbody when it is discharged, EPA disagrees. It is true that chemical processes, such as reduction/volatilization, occur to the mercury discharged to a receiving waterbody, and these chemical processes may cause

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limited circumstances because of the persistent, bioaccumulative nature of the pollutant. See, e.g., 40 C.F.R. Part 132, Appendix F, Procedure 3.C (prohibiting mixing zones for mercury and other bioaccumulative chemicals of concern in the Great Lakes System, subject to water conservation and technical/economic feasibility exceptions for existing discharges).

some mercury to be lost from the system. However, this small loss of mercury is not able to be quantified, and therefore, cannot be considered when making wasteload allocations. Also, methylation of mercury changes mercury from one form to another and does not remove any mercury from the system. Therefore, EPA believes that it is not being technically inconsistent in not allowing mixing zones in this TMDL.

Comment

The commenter indicates that phased TMDLs for the Middle and South Georgia watersheds would take into account expected loading reductions from nonpoint sources, such as air emissions, in determining the reductions (if any) that are needed from point sources. EPA cannot simply impose onerous obligations on the point sources, which do not result in attainment of standards in the waterbody, and claim that the resulting permit limits constitute a valid TMDL. The comment also notes that if EPA cannot find a mix of loading reductions that results in attainment of standards, then there is no way to develop and implement a valid TMDL at all, since a TMDL must result in attainment. In that circumstance, EPA (or the state) one choice: reevaluate the attainability of the designated use. If reductions cannot be found to reach the standard, then the standard is not attainable, and under EPA's own regulations, it should be changed. Once a standard is developed that is attainable, the State would evaluate whether the standard is already being met, in which case a TMDL would not be needed. If the standard is attainable but is not being met, then a TMDL would be proper, to reach the properly assigned designated use.

Response

As an initial matter, EPA notes that a TMDL is valid under Section 303(d) and EPA's implementing regulations if it is calculated at levels necessary to achieve applicable water quality standards and contains wasteload allocations and load allocations that equal the loading capacity of the waterbody for the pollutant (which in turn is derived from the applicable standard). The TMDLs established today meet these requirements. Therefore, EPA disagrees with the comment that it is impossible to develop a valid TMDL in situations when air sources are almost entirely the cause of the problem. Indeed, even in situations when the responsible sources are outside of CWA control, the TMDL still functions as a important planning tool (particularly by quantifying the atmospheric reduction target) that federal, state and local authorities can use in identifying the need for and imposing regulatory and non-regulatory control measures on air deposition sources. On the subject whether EPA can estimate, at this time, whether the load allocations assigned to air sources are reasonably likely to be achieved, please see section 10.1 of the respective TMDLs. In addition, please see other comment responses regarding the reasonableness of expecting reductions from point sources.

EPA agrees with the commenter that the State retains the authority under Section 303(c) of the Clean Water Act and EPA's implementing regulations to reevaluate the attainability of the designated uses for these waters and, when appropriate, to

change the standard, subject to EPA's review and approval. See, e.g., 40 C.F.R. § 131.10. In that event, if data show that the new water quality standard is being attained, then no TMDL would be required. However, Georgia has neither made – nor has EPA approved – any such change to its applicable water quality standards. Therefore, based on the data available today indicating that the current, applicable water quality standard for mercury is being exceeded in these listed waters, a TMDL is required under section 303(d).

Comment

The commenter indicates in the middle and south Georgia TMDLs, EPA has applied some elements of the phased TMDL concept, but has not fully implemented the phased TMDL process as it applies to point sources. The Agency does not consider the expected loading reductions from nonpoint sources. Those estimated reductions are clearly enough to bring about attainment of standards. Logically, that should mean, as part of a phased TMDL, that point sources receive no loading reduction requirements. However, EPA goes on to allocate reductions to the point sources, making them reduce loadings by the same proportions as the other sources, even though there is no need for those reductions, which are extremely minor in the overall picture. EPA should fully implement the phased TMDL concept, by allowing the point sources the full allocations to which they are entitled.

Response

For a discussion on EPA's basis for assigning load allocations and wasteload allocations in these TMDLs, please see Section 10 of the respective TMDLs being established today, and other comment responses.

Comment

The commenter indicates that Option B of the TMDL call for placing requirements for minimization plans within NPDES permits as permit conditions. We believe that requirements for minimization plans should not be included in permits as permit conditions for point sources. We question whether the Agency has the legal authority to impose such permit conditions requiring development and implementation of minimization plans.

Response

As the commenter notes, the wasteload allocations in today's TMDLs include so-called Option B, which essentially constitutes a wasteload allocation expressed in narrative form. In addition, EPA's regulations at 40 C.F.R. § 122.44(d)(1)(vii)(B) require that water quality-based effluent limitations be consistent with the assumptions and requirements of any applicable wasteload allocation approved or established by EPA. Therefore, while the TMDL itself does not establish permit limits, it is reasonable to expect that Georgia will use them as a basis for water quality-based effluent limits in state-issued NPDES permits.

While as a matter of policy EPA recommends numeric effluent limitations, neither EPA's regulations nor the CWA precludes EPA or states from expressing

WLAs (or water quality-based effluent limitations) in non-numeric form with appropriate justification. The CWA defines "effluent limitation" broadly, and EPA's regulations reflect this as well. Each provides that an effluent limitation is "any restriction" imposed by the permitting authority on quantities, discharge rates and concentrations of a pollutant discharged into a water of the United States. CWA § 502(11) (emphasis supplied); 40 C.F.R. § 122.2 (emphasis supplied). Neither definition requires an effluent limitation to be expressed as a numeric limit. The D.C. Circuit observed, "Section 502(11) defines 'effluent limitation' as 'any restriction' on the amounts of pollutants, not just a numerical restriction." NRDC v. EPA, 673 F.2d 400, 403 (D.C. Cir.) (emphasis in original), cert. denied sub nom. Chemical Mfrs. Ass'n v. EPA, 459 U.S. 879 (1982). In short, the definition of "effluent limitation" is not limited to a single type of restriction, but rather contemplates a range of restrictions that may be used as appropriate. For example, EPA's regulations at 40 C.F.R. § 122.44(k) authorize effluent limitations in the form of best management practices, e.g., when it is infeasible to calculate numeric limitations or when the practices are reasonably necessary to carry out the purposes of the Act. See 40 C.F.R. § 122.44(k)(3) & (4).12

In these TMDLs, the narrative version of the WLA is expressed essentially as follows: the quantity of mercury loadings that would be present in each point source's effluent after the point source implements appropriate measures to minimize the identified loadings. Under the narrative WLA, EPA expects the permitting authority to establish NDPES permit limitations (in the form of narrative requirements) and conditions that would require the discharger either to develop and implement mercury minimization measures (in some situations) or to undertake mercury characterization activities and, if appropriate, develop and implement mercury minimization measures (in other situations). Because, as stated above, NPDES permit limitations must be consistent with the assumptions and requirements of WLAs in TMDLs, Georgia would have the legal authority to include these mercury minimization provisions as enforceable permit terms.

EPA believes that mercury reductions achieved through implementation of the narrative WLAs, in the aggregate, will result in loadings equal to or less than the cumulative WLAs assigned in these TMDLs. EPA believes this reduction can be achieved through reasonable mercury minimization programs, where necessary. EPA bases this belief on its study of pollutant minimization programs and their success in reducing loadings of mercury to the environment. (See EPA, 1997, Mercury Report to Congress and EPA, 1999, Pollution Prevention at POTWs

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[12] While these WLAs are not, in themselves, enforceable water quality-based effluent limitations, EPA believes that an analogy to such limits for this purpose is appropriate because of their close relationship. See 40 C.F.R. § 122.44(d)(1)(vii)(B) (requiring the permitting authority to ensure that water quality-based effluent limitations in NPDES permits are consistent with the assumptions and requirements of WLAs established in a TMDL).

Reference List.) POTWs and industrial dischargers have implemented source controls, product substitution, process modification, and public education programs with great success. For example, POTWs can educate the public to prevent pollution by avoiding household products that contain high levels of mercury or substituting those products for ones that are mercury-free or more environmentally friendly. The most cost-effective approach for POTWs to substantially reduce mercury discharges appears to be pollution prevention and waste minimization programs that focus on high concentration, high volume discharges to the collection system, with considerable effort also directed at high concentration, low volume discharges such as medical and dental facilities. Using pollutant minimization/pollution prevention programs also will reduce mercury loadings from air sources. Mercury controlled at the POTW through end-of-pipe treatment is likely to reenter the environment through pathways such as air deposition and runoff associated with from land application practices (because mercury removed from effluent invariably is transferred to POTW sludges and is either incinerated or applied to land). EPA believes that the solution to controlling mercury releases to the environment is not to change the media release from water to air or land, but to either prevent mercury from entering the wastewater collection system at the source through product substitution, waste minimization or process modification, or by removing and recycling mercury at the source (i.e., source controls) using state-of-the-art technology. Where these approaches have been implemented, substantial reductions in mercury concentrations in POTW influents, sludges, and effluents have been achieved. For a discussion of this, see, for example, Overview of Pollution Prevention Approaches at POTWs (EPA 1999).

EPA also notes that the WLAs allow the discharge of source water by point sources so long as the facility does not add any mercury to the discharged water. This is because these TMDLs address chronic mercury conditions and long term bioaccumulation of mercury in fish tissue; therefore, so long as there is no increase in mass in the discharge, there would be no additional adverse impact on the River.

Comment

The commenter indicates that any requirement that the source achieve possible and feasible reductions, such as those required by minimization plans, when the TMDL itself will include loading reductions from other sources that will, by themselves, result in attainment of standards, is simply inconsistent with the basic notion of a TMDL. Those reductions are not needed to achieve the TMDL's goal, and therefore have no legal basis within the TMDL process.

Response

EPA agrees that the point sources are a small component of the overall mercury loading into the waters affected by today's TMDLs. EPA does not agree, however, that point sources should not be responsible for any of the load reductions necessary for the waters to attain standards. For some TMDLs, EPA

has tailored the wasteload allocations to reflect the remaining allowable allocation after accounting for reasonably anticipated air deposition reductions and a margin of safety. For the other TMDLs, as discussed in Section 10 of each such TMDL, EPA bases the cumulative WLA on a variety of other factors. Foremost among these is the fact that, under current conditions, the point sources account for less than 1% of the current mercury loadings and that, upon implementation of the cumulative wasteload allocation, their total resulting mercury loadings will be de minimis and further reductions will make no meaningful improvement in water quality. This is not a situation where a wasteload allocation to a point source is increased based on an assumption that loads from nonpoint sources will be reduced. To the contrary, the cumulative wasteload allocation explicitly assumes that point source loadings will be maintained at levels at or below criteria end-of-pipe or will be reduced through feasible minimization measures to de minimis levels. Therefore, EPA's 1991 and 1997 guidance calling for "reasonable assurance" as a basis for the cumulative wasteload allocation does not apply in this situation. See New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs), August 8, 1997 (discussing EPA's 1991 TMDL guidance).

The reductions contemplated by the cumulative wasteload allocation reflect the fact that mercury is a bioaccumulative, persistent pollutant that has been linked to serious health effects. For these TMDLs, EPA believes as a matter of policy that point sources that can reduce their mercury discharges in a cost-effective way should do so. The mere fact that air sources are currently the dominant cause of impairment does not excuse point sources from implementing feasible pollution prevention measures to reduce their contribution of mercury, however small, to the environment. Indeed, sources that implement pollutant minimization plans frequently remove from the environment considerably more of the pollutant than can be accomplished through treatment. This is because less of the pollutant is generated in the first place; except when the pollutant can be completely destroyed (e.g., by changing its molecular structure), treatment solutions usually result in simply transferring the pollutant from one medium to another (e.g., from water to the air or land).

EPA also notes that point source discharges of bioaccumulative chemicals like mercury may have particular local significance, apart from their contribution to the cumulative load. Point source discharges by their nature may create "hot spots" where observed elevated concentrations have potential impact on aquatic life, wildlife, and human health. Consequently, comparing contributions from the air and water sources conceals the real impact of mercury from point source discharges. In many cases elevated receiving water concentrations may be dictated solely by the mercury concentration in the effluent as opposed to the mercury delivered from air deposition. This is supported by field data and will generally be true when comparing the near-field effects of effluent discharges relative to air sources. Empirical data supports EPA's research into air deposition of mercury and fish tissue modeling that showed that controls on point sources could factor site-specifically into reducing fish tissue levels of mercury. In short,

EPA believes it is reasonable to expect NPDES permittees to implement feasible and achievable measures to reduce the amount of mercury they discharge into the environment.

EPA does not believe that these TMDLs place massive cost burdens on NPDES point sources. Point sources represent only 1% of the load reductions necessary for the waterbodies to attain standards. EPA agrees that meeting end of pipe effluent limits equivalent to the applicable water quality standard may be very costly. However, EPA expects the permitting authority will not generally choose WLA Option A for permit limitations. Rather, EPA anticipates the point sources will be able to achieve their assigned reduction, for an aggregate reduction in mercury at or below the cumulative wasteload allocations, through implementation of feasible and achievable measures, identified by the point sources themselves, through mercury minimization plans. In addition to reducing direct discharges of mercury to the waters affected by these TMDLs, mercury minimization also can significantly reduce the creation of mercury and the transfer of mercury to wastewater treatment sludge.

EPA recognizes that it is possible that reductions in mercury emissions from air sources may, by themselves, eventually result in the attainment of water quality standards for the affected waters. However, while EPA projects significant reductions from current or proposed MACT regulations, for a number of TMDLs EPA cannot be certain at this time that all reductions needed to meet the TMDL's load allocations will be achieved. One way that EPA is accounting for these uncertainties is by assigning cumulative wasteload allocations that assume that mercury dischargers will either maintain their effluent at or below applicable water quality standards for mercury or will implement feasible minimization measures (i.e., do the best they can to reduce their loadings of mercury to the affected water). EPA is also accounting for these uncertainties through its margin of safety. In addition, these measures can conceivably yield reductions beyond those actually contemplated in the cumulative WLAs, thus providing a margin of safety to offset equivalent reductions that ultimately may not be achieved from the air sources.

Under EPA's regulations, NPDES permits must include conditions as necessary to achieve applicable water quality standards. See 40 C.F.R. § 122.44(d)(1). In order to decide whether such limitations or conditions are necessary, the permitting authority must determine whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream exceedance of the applicable water quality standard. See 40 C.F.R. § 122.44(d)(1)(i). EPA believes that NPDES discharges of mercury to these waterbodies do have the reasonable potential to cause or contribute to an exceedance of water quality standards. However, if they are regulated at levels that are consistent with the assumptions of the wasteload allocations in these TMDLs, they will not cause or contribute to the exceedance of water quality standards. Therefore, more stringent limitations than those derived from the wasteload allocations are not necessary to achieve water

quality standards. Nor would the prohibition in 40 C.F.R. § 122.4(i) apply. There are two reasons for this.

First, mercury loadings that reflect implementation of the cumulative wasteload allocations will have only a de minimis effect on water quality; therefore, discharges at these levels would not cause or contribute to an in-stream exceedance of the mercury water quality standard. EPA has determined that loadings resulting from the cumulative wasteload allocations would be de minimis because the record shows that entirely eliminating the point source discharges of mercury (through a wasteload allocation of zero) will have no discernible effect on water quality. EPA has also determined, however, that discharges at levels above the cumulative wasteload allocation would not be de minimis, because mercury has been linked to serious health effects even in small amounts. Therefore, EPA believes that such discharges would have the reasonable potential to cause or contribute to an exceedance of water quality standards.

Second, the TMDLs assume that all NPDES point sources will discharge mercury at or below the applicable water quality criterion for mercury at the end of their pipe (unless they opt for pollutant minimization). Loadings at or below criteria end-of-pipe do not "cause or contribute" to the exceedance of the applicable standard because, in essence, the quality of the effluent is equal to or better than the desired quality of the receiving water. This may not always be the case, e.g., when the water quality problems caused by additional units of mass are not reflected in the applicable concentration-based water quality criterion. However, that is not the situation here, where the concentration-based water quality criterion for mercury explicitly takes into account bioaccumulation of grams of mercury in fish tissue, thus reflecting both concentration and mass concerns. While it is possible that, under Option B, individual dischargers implementing mercury minimization measures might exceed criteria end-of pipe on a case-by-case basis, the extra discharges are already reflected in the cumulative wasteload allocations of these TMDLs, which also reflects the numerous other NPDES dischargers that appear to be maintaining mercury discharges below criteria end-of-pipe. This means that the total point source loading, in the aggregate, would be at or below the applicable water quality standard.

Comment

The commenter indicates on its face, the mercury FCG TMDLS do not appear to be protective of water quality in that they merely recommend maintaining the status quo for mercury loading. For example, in the Jackson Lake and Ocmulgee River TMDL, 38% of the fish sampled for this TMDL violated the standard for mercury of <0.30 Thg, mg/kg.

Response

While the commenter is correct in indicating that a percentage of the fish will be in excess of the 0.3mg/kg methylmercury in fish tissue, compliance with the water quality standard is not based on all or the vast majority of fish meeting the 0.3mg/kg. Rather, the State of Georgia determines compliance based on the

average concentration of methylmercury in fish tissue over the range of freshwater species and sizes that the general population is expected to consume at a given consumption rate. Under this analysis, the waterbodies are currently in compliance with the water quality standard and as such, the maintenance of the status quo is acceptable.

Comment

The commenter indicates limited sampling should not be used as a justification TMDLs that require no action. For example, in the Big Haynes Reservoir TMDL, the claim of limited sampling showing attainment of the interpreted standard value does not mean that the waters are not water quality limited for mercury, nor cancels the need for a TMDL.

Response

Attainment can only be judged based upon available data. As more data is collected the waterbody can be re-assessed to determine whether standards have been attained. TMDL

Comment

The commenter indicates the reasoning used in the Altamaha and Ohoopee TMDL to determine that some waters are meeting the applicable standard for mercury and do not need TMDLs is faulty.

Response

When Georgia's methodology for determining impairment is applied to the fish tissue data collected for the Altamaha River, it is in fact attaining standards. This cannot be said for the Ohoopee River. The TMDL development for the Ohoopee River determined a reduction in total mercury loading is needed to achieve standards.

Comment

The commenter indicates no data were available for mercury in the sediment in the Jackson Lake and Ocmulgee River TMDL, either, revealing that EPA has no good idea of the actual measures in those waters.

Response

EPA disagrees; the commenter is referred to Table 3 of the Ocmulgee TMDL. Sediment concentrations of mercury in the sediments in the Ocmulgee River range from 96 to 110 ng/l. No sediments were collected for Lake Jackson because it was added to Georgia's 303(d) until after EPA completed the sampling in the Georgia middle three basins.

Comment

The commenter indicates page 30 of the Altamaha/Ohoopee TMDLS contains an acknowledgment that sampling at several facilities showed discharges of mercury at levels above the standard of 3.4 ng/l, and referenced Table 11 which lists facilities given

WLAs. However, Table 11 does not exist, and there are no WLAs given; rather, the document calls for end of the pipe compliance, which is faulty because if contains no MOS.

Response

This is acknowledged and EPA made the necessary adjustment to the TMDL. It should be noted that all data collected in association with the development of these TMDLs are available in the administrative record. The NPDES sample results are available here.

Comment

The commenter indicates there is reportedly 30 NPDES permitted facilities discharging into the listed segments of the Oconee River, but no information or data are provided about these facilities. As a result, no one can make an informed review of this document. The WLA is listed as a "gross allocation" which makes no sense at all and conflicts with the regulations. 40 C.F.R. ' 130.2. This TMDL appears to do nothing towards achieving cleaner water, provides no reasonable assurances, and does not satisfy the minimum requirements for TMDLs.

Response

The TMDL document has been modified to list the 30 NPDES permitted facilities that discharge to the listed segment. The WLA allocation is given as a gross allocation to all dischargers, the decision of how this gross allocation is developed in permit limits is up to the discretion of the State of Georgia's NPDES permit group.

Comment

The commenter indicates while the MOS for the Altamaha and Ohoopee Rivers is expressed as an explicit value, it is confusing that EPA states "The MOS is typically incorporated into the conservative assumptions..." While this is a true statement, it is not a good thing. A 10% explicit value is included in the Altamaha TMDL, but there is no explanation of how this is associated with the uncertainty as required by the law and regulations.

Response

EPA agrees that Margin of Safety (MOS) should be quantified and explains the uncertainty in the TMDL calculations. In the case of the Altamaha River it was determined that a TMDL did not really need to be done because when the waterbody is assessed using Georgia's methodology the water body is not impaired. A 10% MOS was incorporated into these informational TMDLs to account for any uncertainty in the use of a single sampling event for the water column.

Comment

The commenter indicates all of the TMDLs are expressed as annual loads. Obviously this is not a total maximum daily load, as the law requires. Legal requirements aside,

how can this allocation be acceptable in terms of monitoring abilities and control mechanisms that could be put in place by state of local entities to ensure that the standards are not exceeded? The agency must keep this endpoint in mind at all times during TMDL development.

Response

The TMDL is expressed as an annual load for several reasons. Average annual flow and average annual loading are appropriate because EPA's human health methodology, which has been used to derive an appropriate numeric interpretation of Georgia's narrative for use support, for this TMDL, assumes that health effects due to mercury occur as a result of long-term exposure to mercury in fish tissue through consumption of contaminated fish. Bioaccumulation of methylmercury in fish tissue is a long-term, multi-year, process. Therefore, the annual average load is more appropriate than a daily load for representing the long-term processes of bioaccumulation in fish tissue that are associated with the potential for health effects. Second, the State applies their human health criteria at a flow equivalent to the annual average flow (Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03(5)(e)(iv) which requires the application of average annual load in the TMDL.

Furthermore, it should be pointed out to the commenter, while the wasteload allocation is expressed as an annual load from the facilities, the way it is spelled out in the individual allocation options the compliance would be judged based upon concentration (water quality target at end of pipe).

Comment

The commenter indicates the Altamaha and Ohoopee TMDLs claim that the covered waters are meeting the derived criterion for mercury, the actual do not agree. In the Altamaha River Segments TMDL gives the derived criterion as 4 ng/l, while the data provided show mercury as high as 6.47 ng/l. In the Ohoopee the allowable concentration is given as 3.4 ng/l, and data show mercury there as high as 8.9 ng/l. These waters are not meeting the criteria.

Response

The Altamaha has been determined not to be impaired using Georgia's assessment methodology. The Ohoopee River has been determined to be impaired and TMDL has been developed. The Water Quality Target (WQT) calculated for the individual waterbodies is based upon mean annual average flow and load. There will be times during the year when the water column concentrations will be above and below the calculated WQT. In the case of the Altamaha River, the samples were taken shortly after a rain event. The typical concentration of mercury in rainwater is 8-18 ng/l. In this case EPA expects the water column concentration to be greater than the WQT.